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Canada. Foreign Trade Service

CANADIAN

EXPORT

TIMBERS





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CANADIAN EXPORT TIMBERS

THEIR PROPERTIES AND USES

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and
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519487

PREFACE

FORESTS, which clothe more than one-third the land surface of Canada, furnish the builder and householder with a wide variety of woods. Some 435,000 square miles of timbered territory are presently accessible for production, and another 378,000 square miles contain reserves for the future, when transportation facilities are provided.

To ensure an orderly development of these timber resources, a progressive stock-taking of the forests of Canada is now in progress. The preparation of this national inventory is being greatly facilitated by the development of techniques for measuring the volume of timber stands and of classifying forest sites, through the interpretation of aerial photographs. These aerial photographic methods are well suited to Canadian forests, where the areas covered are so great and the species so diversified.

With such a wealth of wood, Canada is enabled to assist substantially in the reconstruction of areas destroyed or badly damaged during the period of hostilities. Canadian timber is obtainable for the construction of new homes and flats, office buildings and shops, churches and libraries, schools and hospitals. It is also available for barns and byres, wharves and warehouses, railway wagons, ties and bridges, pit props and mine gantrys, boxes and crates in which goods may be carried to distant markets, and for building ships in which food and raw materials are carried overseas and manufactures are borne away.

Canadian woods are welcomed by the manufacturer of furniture and the cabinet maker, whose art contributes much to the pleasure of home owners. Plywoods and veneers are provided for many purposes. The builder may find in Canadian woods the type of timber that most nearly meets his specifications. Canadian wood enters into every stage of human life, from the cradle to the grave.

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Canadian Export Timbers

Their Properties and Uses

Forest Areas

The total land area of Canada is approximately 3,462,000 square miles, of which about 37 per cent or slightly under 1,291,000 square miles is forested. The total productive forest area is estimated to be 813,110 square miles, of which slightly less than one-half carries timber of merchantable size. Softwoods or conifers predominate on 494,155 square miles. Mixed forests of softwoods and hardwoods cover about 215,200 square miles, and hardwoods in fairly pure stands cover 103,755 square miles.

In British Columbia and the Prairie Provinces, with the exception of poplar, the hardwoods are of limited importance. In Eastern Canada, however, there are large quantities of valuable hardwoods, including birch, maple, beech, poplar, elm, basswood, and other less important species. Birch and maple are of particular value in the export trade.

Forest Resources

It is estimated that Canada has altogether 311,201 million cubic feet of standing timber of merchantable size. Of this, 191,347 million cubic feet is accessible to existing means of transportation. The accessible timber of a size suitable for sawing is estimated to amount to 250,250 million feet board measure. The remainder is, for the most part, young timber which can be used for pulpwood, fuel, fence posts, etc.

Eastern Canada leads in accessible saw timber, having about 50 per cent of the total of such material; British Columbia has about 44 per cent, the remainder being in the Prairie Provinces. In addition, there are large resources of the smaller timber suitable for pulpwood, cordwood, etc. This applies especially to Eastern Canada, where the forests contain about 77 per cent of the total amount of such material.

Canadian Tree Species

There are in Canada over one hundred tree species. These may be divided into three general classes:

- (1) Those of export as well as domestic importance.
- (2) Those of importance only for the domestic market or for shipment to the United States.
- (3) Those of no commercial importance.

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In this publication it is proposed to deal in detail with the woods in the first class only; to give a list of the timbers in the second class; and to disregard the third class, details with respect to which may be found in technical publications by those interested.

In the first class are included the following woods:

Softwoods or Conifers

PINES

- White pine: *Pinus Strobus* L.
- Western white pine: *Pinus monticola* Dougl.
- Red pine: *Pinus resinosa* Ait.
- Jack pine: *Pinus Banksiana* Lamb.

SPRUCES

- Canadian spruce
 - White spruce: *Picea glauca* (Moench) Voss.
 - Black spruce: *Picea mariana* (Mill.) B.S.P.
 - Red spruce: *Picea rubens* Sarg.
- Sitka spruce: *Picea sitchensis* (Bong.) Carr.

HEMLOCKS

- Eastern hemlock: *Tsuga canadensis* (L.) Carr.
- Western hemlock: *Tsuga heterophylla* (Raf.) Sarg.

DOUGLAS FIR: *Pseudotsuga taxifolia* (Poir.) Brit.

WESTERN RED CEDAR: *Thuja plicata* Donn.

Hardwoods

POPLAR

- Trembling aspen: *Populus tremuloides* Michx.

BIRCHES

- White birch: *Betula papyrifera* Marsh.
- Yellow birch: *Betula lutea* Michx.f.

ELMS

- White elm: *Ulmus americana* L.
- Rock elm: *Ulmus Thomasi* Sarg.

MAPLE

- Sugar maple: *Acer saccharum* Marsh.

BASSWOOD

- Tilia americana* L.

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The following table indicates approximately the quantities of these timbers of size suitable for sawing into lumber which are now considered accessible in British Columbia and the Eastern Provinces. Not all of this timber under present conditions can be considered accessible from an export standpoint, but it would be impossible in many cases to give, with any degree of exactitude, the percentages of the forest resources which may be considered exportable. The quantities given will, however, indicate those timbers available in large quantities and also those of which supplies are more limited.

**Approximate Quantities of Accessible Saw-Log Material of the
Principal Export Timbers of Canada**

Timber	Million feet board measure	Regions to which figures mainly pertain
White pine	6,655	Eastern provinces
Western white pine	855	British Columbia
Red pine	1,910	Eastern provinces
Jack pine	14,040	Eastern and Prairie provinces
Canadian spruce	53,860	Eastern and Prairie provinces
Sitka spruce	17,630	British Columbia
Eastern hemlock	1,750	Eastern provinces
Western hemlock	24,985	British Columbia
Douglas fir	23,875	British Columbia
Western red cedar	24,595	British Columbia
Poplar	11,365	Eastern and Prairie provinces
White birch	8,020	Eastern and Prairie provinces
Yellow birch	8,175	Eastern provinces
Elm	600	Eastern provinces
Sugar maple	5,745	Eastern provinces
Basswood	425	Eastern provinces

NOTE: 1,980 feet board measure are equivalent to one Standard.

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Annual Sawn Lumber Production by Species (Average based on years 1936-45 incl.)

	Thousand feet B.M.
SOFTWOODS:	
Douglas fir	1,410,380
Spruces	1,470,274
Hemlock	401,494
White and red pines	360,908
Cedars	167,992
Jack and lodgepole pines	130,062
Other softwoods	45,658
Total	3,986,768
HARDWOODS:	
Yellow birch	143,797
White birch	22,532
Maple	54,463
Poplar	29,097
Other hardwoods	68,386
Total	318,275
UNSPECIFIED	781
Total annual lumber production (average) all species	4,305,824

NOTE: 1,980 feet board measure equivalent to one standard.

CANADIAN EXPORT TIMBERS

SOFTWOODS

WHITE PINE (*Pinus Strobus*)

WHITE pine in Canada is sometimes called Eastern white pine, and in the United Kingdom, Quebec yellow pine and Ottawa pine. This tree, under favorable conditions, reaches a height of from 175 to 200 feet and a diameter of 5 feet, but in the average forest it is generally from 90 to 125 feet in height and from 20 to 30 inches in diameter, breast height.

It is found in Newfoundland and in Eastern Canada from the Maritime Provinces to Eastern Manitoba, but the commercial forests are largely confined to the St. Lawrence drainage area. Its best development is found in the Ottawa Valley of Ontario and Quebec and in the Great Lakes region of Ontario.

White pine was for many years the most important sawn lumber tree of Canada, and though its production is now exceeded by that of Douglas fir and spruce, it is still Canada's third most important timber from a production standpoint. The timber is very highly regarded for a wide variety of uses, and in particular for many special uses of an exacting nature. Its sapwood is almost white and the heartwood of a creamy white to a light straw-brown shade.

It is the softest of the Canadian pines and works exceptionally well under tools, taking a smooth satin-like finish. It is quite a light wood, in the air-dry condition, weighing about 24 lbs. per cubic foot. It is not as strong as most of the hard pines and therefore is not used for heavy structural work, but for ordinary construction, where long life is of greater importance than high strength, it is very serviceable.

A most important characteristic of white pine is its low shrinkage. In this respect it is superior to all other Canadian species excepting the cedars. It seasons easily and uniformly, though care has to be exercised to prevent staining, especially of the sapwood. On account of its low shrinkage and uniform texture it is used extensively for patterns, windows, and for other uses where stability of size is important. The wood is comparatively free from injurious resin and takes stains, paints and varnishes exceptionally well. It has good nail-holding properties and does not split or splinter. White pine makes excellent wood flour, which is used extensively in the manufacture of linoleum.

CANADIAN EXPORT TIMBERS

Typical Uses:

General carpentry
Agricultural implements
Musical instruments
House construction
Boarding
Joinery
Windows and doors
Pumps, tanks and silos
Vehicles
Boxes and crates
Engineering works
Match splints
Mouldings
Cabinet work

Refrigerators
Laundry appliances
Woodenware
Dairy appliances
Furniture
Shipbuilding and boat building
Patterns, drawing boards and
artists' supplies
Textile machinery
Flour-mill machinery
Shelving
Wood flour
Wood wool

White pine is exported as deals, boards, sidings, deal ends, and also as waney and square timber.

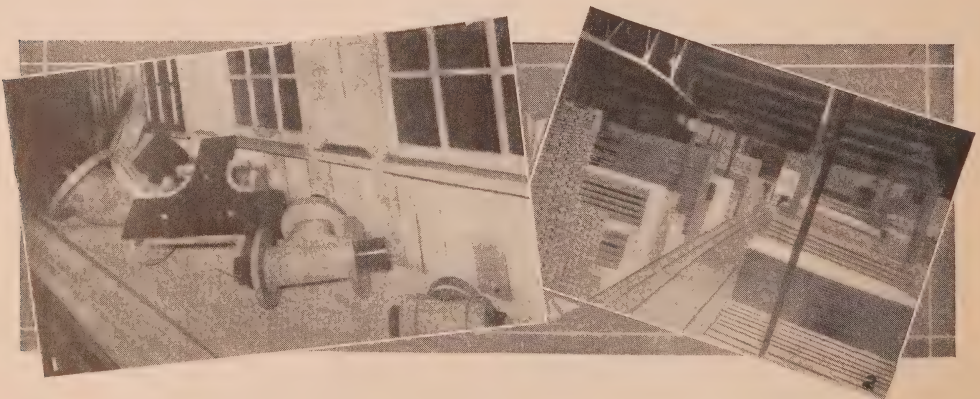
Deals are 2 to 4 inches in thickness (generally 3 inches), from 4 inches to 12 inches or over in width and up to 16 feet in length. They are shipped in four qualities: first, second, third and fourth.

Sidings are 1, $1\frac{1}{4}$, $1\frac{1}{2}$ and 2 inches thick, 7 inches and wider, and from 10 to 16 feet long, in first to fourth quality. Several special grades are put up by exporting firms to meet specific requirements of customers.

Deal ends are put up in first, second, third, and fourth qualities, 6 to 8 feet in length.

Deal buttings are usually put up in first, second, and third qualities, 2 feet to 5 feet in length.

Waney and square timbers are exported for re-sawing for special purposes.



(1) White Pine patterns. (2) White Pine under covered storage in Great Britain.



(1) White Pine is excellent for outside service. It is durable and holds paint well. Note White Pine siding and columns. (2) This barn has White Pine siding and Cedar shingle roof. (3) White Pine is an excellent wood for exposed work and finds considerable use in remodelling old houses. (4) The Royal York Hotel, Toronto, Canada. The window sash and frames are all of White Pine. (5) White Pine is used extensively for exterior doors and doorways on account of its very low shrinkage and high durability. (6) White Pine is favoured for trellis work and lawn furniture.



(1) White Pine turnery and hand carving combined with Yellow Birch in a coat rack. (2) Knotty White Pine panelling, clear White Pine trim, and hand carved decorative woodwork. (3) White Pine used for interior woodwork of a large theatre in Montreal. (4) White Pine and Yellow Birch in a ticket office in a theatre entrance. (5) White Pine and Yellow Birch combined to make an attractive staircase in a high-class home.

CANADIAN EXPORT TIMBERS

WESTERN WHITE PINE (*Pinus monticola*)

Western white pine is a tall tree with a clean bole tapering very little. It occasionally reaches a diameter of 4 feet and a height of 175 feet, but generally in an average forest it is from 75 to 125 feet in height and from 2 to 3 feet in diameter. In Canada it is found only in southern British Columbia and is generally mixed with western hemlock, Douglas fir and the true firs. It is found in some of the valleys of the interior where there is good rainfall, and on Vancouver Island and the adjacent mainland.

The wood of western white pine is closely similar to that of eastern white pine. It is very light in colour, though generally the heartwood is slightly darker than in the eastern wood. It is straight-grained and uniform in texture, slightly harder than eastern white pine but works well under tools. It takes an excellent finish, is very suitable for painting or enamelling, holds nails well, and is a most useful wood for a wide variety of purposes.

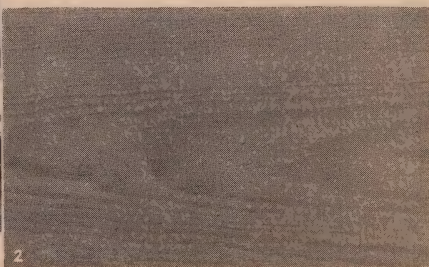
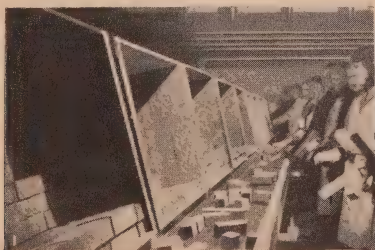
It is slightly stronger than eastern white pine, comparing very closely with spruce in this respect. It is fairly durable, though generally not rated so high in this respect as the eastern white pine. Air-dry, it weighs about 26 lbs. per cubic foot.

It seasons in the open with very little checking or warping and can be kiln-dried with little difficulty. In drying the shrinkage is medium, being between that of spruce and eastern white pine.

Typical Uses:

It is used for the same purposes as eastern white pine.

Western white pine is generally exported from British Columbia as deals or flitches, for re-sawing for pattern stock or other special purposes where wide clear material is required.



(1) Sorting and packing Western White Pine match blocks for export. (2) Western White Pine.



(1) Waney Western White Pine logs for export from British Columbia. (2) Door and doorway of Western White Pine — Western Red Cedar bevel siding. (3) Wide Western White Pine deals. (4) Western White Pine mantel. (5) Hall rack of Western White Pine with back of Black Cottonwood plywood.

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RED PINE (*Pinus resinosa*)

This tree is frequently called Norway pine in Canada, but the name "red pine" is very significant and appropriate on account of the distinctive reddish-brown colour of the bark. Red pine is ordinarily from 75 to 120 feet in height, and attains a diameter of from 20 to 30 inches. The trunk is very erect with little taper and is usually clear of branches for about three-quarters of its length. Red pine is found from the Atlantic Ocean to Lake Winnipeg in Manitoba, but like white pine it is not found in large quantities north of the St. Lawrence drainage.

Red pine has a deep sapwood of a pale yellow colour; the heartwood is darker and of a pale reddish tinge. There is good contrast in colour between springwood and summerwood, especially in the heartwood, which gives the wood considerable figure when cut flat-grained. Although a comparatively light wood, it is heavier and harder than white pine, easy to work, takes a good finish, and holds nails and screws well. It is fairly strong, and is used extensively as a structural timber. It weighs about 28 lbs. per cubic foot, air-dry. For ordinary purposes it has medium durability, though untreated it is not very durable when in contact with the soil or in other conditions of severe exposure to decay.

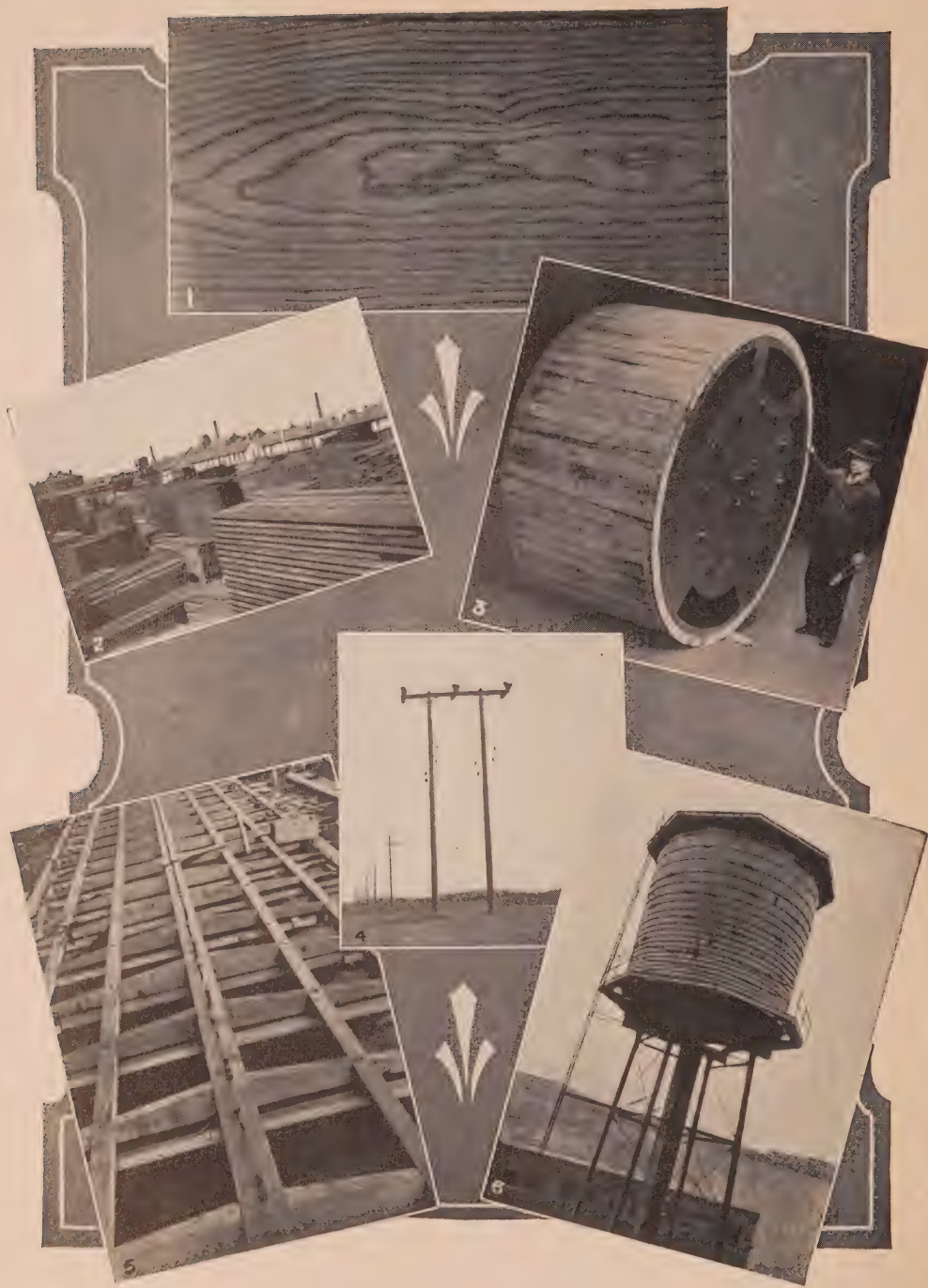
It seasons uniformly with little checking, twisting or cupping. It is readily kiln-dried and its finishing qualities improved thereby, through the setting of the resin. It shrinks in seasoning more than white pine, but may be classed among the woods having medium shrinkage. It can be quite readily treated with preservatives, especially the sapwood, and when so treated is, especially in the round, valuable for poles and piles.

Red pine is exported as deals and boards. Deals are usually 2 inches and 3 inches in thickness, 4 inches and up in width and up to 18 feet in length. Special thicknesses and widths are furnished when required.

Typical Uses:

Structural timbers: docks, bridges, shipbuilding	Garden frames Grain milling equipment	Agricultural implements Boxes and crates
Windows and doors	Cabinet work	Tanks and silos
House construction	General carpentry	Piling, telephone poles
Derricks, joinery	Railway wagons	Machinery parts

Both deals and boards are usually exported as unsorted quality, but boards are also shipped as clear and clear-face grade, which is high-class material.



(1) Red Pine. (2) Red Pine and White Pine in yard storage in England. (3) Red Pine electric cable drum. (4) Creosoted Red Pine poles and piles are used extensively. (5) Red Pine used in roofing and refrigerator cars. (6) Red Pine water tank.

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JACK PINE (*Pinus Banksiana*)

Jack pine is not a large tree, though in favourable stands it may attain a height of 90 feet and a diameter of 2 feet or more. In general, however, commercial trees are from 10 to 20 inches in diameter and 60 to 70 feet in height. In open forests jack pine is very branchy, but in a pure or mixed dense forest it develops a straight clear trunk. Jack pine is found in Canada from Nova Scotia to the Rocky Mountains and northern Alberta, where it meets the lodgepole pine, which it closely resembles.

The wood is quite light in colour, though slightly darker than that of white pine. It is of medium hardness, in this respect being considerably harder than white pine and slightly harder than red pine (though in the latter case the difference is not great). The sapwood is not so deep as in red pine. Jack pine weighs about 31 lbs. per cubic foot, air-dry.

It works and finishes quite well. As the tree is small, it produces only a small percentage of prime material, but a good grade of common timber useful for a variety of purposes. It holds nails well, and for this reason is a valuable box and crating lumber.

For exposed work it is moderately durable and has been used very extensively in Canada for railway sleepers, but for best service in such positions it should be treated. It treats quite readily with creosote or other preservatives and, when treated, is increasing in favour for telegraph and telephone poles, for which it has shown very satisfactory strength.

Jack pine seasons without difficulty and has comparatively low shrinkage factors, approaching white pine in this respect. Its shrinkage in seasoning is also very uniform, and therefore no great difficulty is encountered through warping and twisting in drying.

Typical Uses:

General house construction
Construction timbers
Piles
Posts
Telephone poles
Railway sleepers
Mining timbers

General carpentry
Concrete form work
Window and door frames
Boxes and crates
Tanks and silos
Pulp

Jack pine is available for export as poles, piles, railway sleepers, and in merchantable grade of sawn timber.



(1) Jack Pine is one of the most widely used timbers in Canada for railway sleepers, both treated and untreated. (2) Jack Pine is being used increasingly for small and medium size poles when cressed. (3) Electric apparatus packed for shipping to Argentina. Jack Pine, Spruce, and Red Pine are used extensively for such boxes. (4) Railway sleepers, principally of Jack Pine, Birch, Maple and Beech, seasoning prior to preservative treatment in a Canadian plant.

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CANADIAN SPRUCE

In Eastern Canada there are three species of spruce—white spruce (*Picea glauca*), black spruce (*Picea mariana*), and red spruce (*Picea rubens*). As a timber tree, spruce in volume of output is second only to Douglas fir, but when its use for pulp and paper is taken into consideration, spruce is Canada's most important wood.

Canadian spruce (white and black) extends across Canada from the Atlantic Coast to Alaska and north to the sub-Arctic zone. It occurs to some extent west of the Rocky Mountains in northern British Columbia but does not reach the Pacific Coast. Red spruce, however, is limited to Nova Scotia, New Brunswick and the eastern part of Quebec.

The wood of the white and black spruces is very light in colour. Red spruce, although also light, has a reddish tinge with more distinct summerwood, which results in more pronounced figure than in the other two spruces. However, the three spruces are so very similar in all their properties that no distinction is made in the timber trade.

Canadian spruce is comparatively soft, and weighs about 28 lbs. per cubic foot, air-dry. It takes a smooth satiny finish, works well under tools, and takes enamels, paints and varnishes satisfactorily. The wood is of great value for the packing of foods, such as butter, which are liable to wood tainting. The fact that it holds nails well and does not split in nailing also makes it valuable for many kinds of containers.

Spruce is a moderately strong wood and therefore is not used in the heavier forms of structural work, though it is used extensively for formwork, carcassing, house framing, and similar work. While not a very stiff wood, it is very resilient, and for this reason is favoured for scaffolding boards and planks. Spruce is not a particularly durable wood in conditions of exposure, but for ordinary construction purposes it gives good service.

Practically all spruce lumber in Eastern Canada is air-seasoned. It seasons quite readily and uniformly without undue degrade through checking and twisting. With respect to softwoods, spruce may be considered of average shrinkage.

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Typical Uses:

Light and medium construction
Windows and doors
Carcassing
Butter and cheese boxes
Box boards
Musical instruments
Shop fitting
Agricultural implements
Joinery
Paddles and oars
Pulp and paper
Rayon pulp, cellophane

Cooperage
Wagon boxes
Pumps, tanks and silos
Organ pipes
Laundry appliances
Piano sounding boards
Ladder stock
Kitchen cabinets
General carpentry
Concrete forms
Shelving

Spruce is mostly shipped in deals two and three inches in thickness, from 4 inches to 11 inches in width and from 10 feet up in length. First, second and third qualities are generally shipped in a grade known as merchantable. Sometimes orders are placed for unsorted material which includes fourths. This is often regraded by the consignee to meet different trade requirements.

Short deals known in the trade as deal ends 3 feet to 9 feet in length are put up for special purposes.

Spruce can be supplied in nearly all dimensions up to a width of 11 inches and a length of 16 feet.



(1) Canadian newsprint from Spruce and Balsam Fir ready for export. (2) Canadian Spruce flooring after 25 years' service in a warehouse in Dublin. (3) Spruce is one of the chief woods used for headings of apple barrels in Eastern Canada.



(1) 30,000,000 feet of logs, principally Spruce, on the Miramichi river, New Brunswick. (2) Raft of logs, principally Spruce, on the St. John river, New Brunswick. (3) Spruce and Balsam Fir pulpwood storage pile for Eastern Canada newsprint. (4) Large quantities of Canadian Spruce are used in scaffolding and for concrete forms. It is especially preferred for scaffold planks. (5) Loading Spruce and Balsam Fir logs in the Maritimes. (6) Spruce is used extensively for scaffolding in erection and launching in the ships yards of Eastern Canada. This picture was taken in Halifax, Nova Scotia. (7) Canadian Spruce is a favourite wood for the manufacture of organ pipes. (8) Canadian butter is shipped in Spruce boxes.

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SITKA SPRUCE (*Picea sitchensis*)

Sitka spruce is sometimes known as silver spruce.

It is a very large tree, occasionally attaining a diameter of over 10 feet and a height of 200 feet. It ordinarily runs from 3 to 6 feet in diameter and 100 to 150 feet in height. It occurs through the coastal belt of British Columbia and attains its best growth on the Queen Charlotte Islands.

Sitka spruce timber is light in weight (about 27 lbs. per cubic foot, air-dry). It is not as light in colour as some of the other Canadian spruces but is usually creamy white to a light pinkish tinge. There is very little difference in colour between the heartwood and sapwood, though generally the latter has not the pinkish shade. The wood is usually very straight-grained. While there is considerable difference in colour between springwood and summerwood, the contrast is not striking as in Douglas fir.

The wood is easily worked and takes a smooth silvery finish. It takes nails without splitting and holds them well, does not splinter nor check unduly in seasoning and working, takes paints and enamels well, and has excellent gluing properties. On account of the great size of the tree and its clear trunk, it produces a high percentage of prime timber. The wood is practically tasteless and odourless.

Sitka spruce is among the strongest of the Canadian spruces. Being a large tree, it is capable of producing large flitches clear of knots or other defects suitable for the manufacture of aeroplane wing-beams, struts, posts, etc. In proportion to its weight it is very strong—a factor of great importance also in aeroplane construction. The wood does not splinter nor shatter easily with impact. As is the case with all spruces, it is only moderately durable. Sitka spruce is not difficult to season especially in boards or small sizes, but care must be exercised in seasoning valuable prime-quality stock in large flitches. Sitka spruce can be kiln-dried without undue difficulty. Its shrinkage in drying is medium and similar to that of other spruce.

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Typical Uses:

Masts and spars
Aeroplane construction
Woodenware
Pulp and paper
Butter boxes
Crates and containers
Sounding boards for musical
instruments
Organ pipes
Draining boards

Table tops
Kitchen cabinets
Oars and paddles
General carpentry
House construction
Agricultural implements
Ladders
Shelving
General joinery
Cooperage

Spruce is sometimes shipped as finished lumber, but generally it is exported in fitches of all sizes. Lengths run as high as 40 feet, widths up to 30 inches. Export sizes commonly are from 2 to 4 inches thick, 8 to 12 inches wide, and 10 to 40 feet long. The following grades are ordinarily shipped: aeroplane grade; No. 2 clear and better or prime; No. 3 clear; merchantable. Special grades are shipped to markets requiring a particular kind of stock.



Winter snows enable timber to be handled economically from the bush to the rivers, which float the logs to mills.



(1) Sitka Spruce is one of the most important woods in the construction of aeroplanes. It is used for wing beams and inter-plane struts, posts and small parts. (2) Clear Sitka Spruce aeroplane grade timbers. (3) A typical large Sitka Spruce tree. (4) Sitka Spruce is valued for ladder stock and, with Western White Pine and other British Columbia softwoods, is used in the toy industry.

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EASTERN HEMLOCK (*Tsuga canadensis*)

Eastern hemlock is not a large tree, generally averaging from $1\frac{1}{2}$ to 2 feet in diameter and from 50 to 70 feet in height, though occasionally larger trees are found. The trunk is usually straight and in dense stands fairly free of branches. It is found from Nova Scotia westerly to Lake Superior south of the height of land, generally mixed with pine or hardwoods.

The wood is light buff in colour with a reddish brown tinge. The annual rings are quite distinct. It weighs about 29 lbs. per cubic foot, air-dry. It is inclined to be somewhat splintery and cross-grained, and while used to some extent finished, is more often used for rough construction work. The wood is of moderate strength not differing greatly from spruce; but is inclined to be more brittle than spruce. It is moderately durable in exposed situations, and is used in Canada to a considerable extent for bridge planking and railway sleepers, though its service for such purposes is greatly improved by treatment.

It is rather difficult to season on account of its tendency to twist, especially when spiral-grained. Its shrinkage in seasoning is moderate, corresponding closely to that of white spruce.

Typical Uses:

General carpentry	Scantlings	Concrete forms
Bridge planks	Boarding	Sheathing and carcassing
Framing	Sub-flooring	Joists
Railway sleepers	Structural timbers	Box and crate stock

While eastern hemlock is not considered a very important export timber, a certain amount is marketed abroad.



Discharging Canadian Timber at an English port

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WESTERN HEMLOCK (*Tsuga heterophylla*)

Western hemlock is sometimes called British Columbia hemlock.

It is one of the most important woods growing in British Columbia. Either as a tree or when cut into timber it has little similarity to eastern hemlock. The western hemlock is a large tree frequently attaining a height of from 125 to 150 feet and a diameter of from 3 to 4 feet, though generally it is from 20 to 30 inches in diameter. The trunk is generally straight and clear of branches for about three-quarters of its length.

Western hemlock is found from Alaska southward along the whole British Columbia coast. It is also found in the interior of British Columbia in certain areas where there is abundant rainfall. On the coast it occurs with Douglas fir, Sitka spruce and western red cedar, and with cedar, spruce and the true firs in the interior of the province.

As a rule western hemlock is fine-textured and uniform. The wood is generally fairly light in colour though not as light as spruce. Sometimes it has a pinkish to reddish-brown tinge. There is little difference in colour between the sapwood and heartwood. The wood is normally free of resin—a factor of importance in its use for pulp and paper, certain kinds of boxes, and in its finishing qualities. Western hemlock is among the heavier Canadian softwoods, its weight being about 30 lbs. per cubic foot, air-dry. The wood, although not so hard as Douglas fir, is considerably harder than spruce and makes a good flooring material. The grain, though not so pronounced as that of Douglas fir, is quite distinctive, and the wood is highly regarded for interior joinery and decoration.

Although not as strong as Douglas fir, western hemlock ranks high in strength properties and can be used for many of the purposes to which Douglas fir is put. It is of the same order of strength as red pine and jack pine.

Western hemlock cannot be ranked among the most durable woods, especially in exposed situations favouring fungus attack. For ordinary purposes it is comparable with spruce in durability.

Western hemlock when green has a very high moisture content and does not season so rapidly nor so easily as Douglas fir. However, with a little care it can be seasoned very satisfactorily in the open air or in dry kilns. It shrinks considerably in seasoning, but holds its shape quite well after being properly seasoned.

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Typical Uses:

House and general construction
Interior finishings
Panel work
Exterior joinery
Interior joinery
Boxes and crates
Windows and doors
Box shooks
Enamelled furniture
Ladder stock

Railway sleepers (treated)
Cooperage
Flooring
Underwater piling
Pulp and paper
Form work
Kitchen cabinets
Carpentry
Broom handles
Carcassing

Western hemlock is exported as box shook, as finished material such as flooring, ceiling, etc., as clear boards for panelling and interior joinery, and as merchantable quality in the usual dimension and structural sizes for general construction work.



- (1) Interior of small hall at the Friend's House, London, England, finished in Western Hemlock.
(2) Western Hemlock panelling in home of prominent London architect. (3) Western Hemlock is one of the most important woods used in packing British Columbia apples.



(1) Kitchen cupboards of knotty Western Hemlock. (2) The new Shire block, Warwick, England. All interior joinery is of Western Hemlock. (3) Egg crate of Western Hemlock. (4) Western Hemlock. (5) A small gymnasium floor of Western Hemlock in New Westminster, British Columbia.

CANADIAN EXPORT TIMBERS

DOUGLAS FIR (*Pseudotsuga taxifolia*)

In the United Kingdom Douglas fir is very often called British Columbia pine. In some markets it is known as Oregon pine and Columbian pine but these names are rapidly being discontinued. It is the largest and the most important timber tree in Canada.

Douglas fir is found in British Columbia in all parts of the southern half of the province excepting the wet coastal district north of Vancouver Island, the mountain regions too high for its production, and certain parts of the Interior Dry Belt district. It is also found in southern Alberta on the east slope of the Rocky Mountains. The best forests in British Columbia are on Vancouver Island and the adjacent mainland.

Occasionally the tree reaches a diameter of 15 feet and a height of over 300 feet. In a good forest it frequently runs from 3 feet to 6 feet in diameter and from 150 feet to 200 feet in height. In such forests the trunk is clear of branches for about two-thirds or more of its height. It has very little taper and therefore produces a high percentage of timber clear of knots and other defects.

Douglas fir has a very thin sapwood, generally only $1\frac{1}{2}$ inches to 2 inches in depth. The sapwood is quite light in colour, but the heartwood ranges from a decided yellow tinge to a reddish brown, which gives rise to the terms "yellow fir" and "red fir," the difference in colour of the wood being generally attributable to age, rate of growth and other growth conditions.

There is a pronounced difference in colour between springwood and summerwood, which gives Douglas fir a very distinctive grain when sawn flat-grain or when rotary-cut for veneer.

With the exception of western larch, Douglas fir is the heaviest Canadian commercial softwood. It is, however, a comparatively light wood, weighing only about 37 lbs. per cubic foot in the air-dry condition. It is also among the hardest of the softwoods, and for that reason is used for purposes requiring hard and continuous wear.

Douglas fir is a very strong wood, especially in relation to its weight. In strength it is closely similar to American pitch pine though much lighter in weight, and in several of its strength properties is comparable with birch and oak. It has become one of the best-known timbers in the world market, not only for heavy structural purposes but for a wide variety of other uses.

Douglas fir ranks high in durability. It is not subject to staining or moulding in seasoning as it has a very thin sapwood. The wood untreated

CANADIAN EXPORT TIMBERS

gives good service for railway sleepers, piling, bridge timbers, culverts, etc., but for long service in conditions favouring decay it should be treated with creosote or other preservative, after incising to improve penetration. The sapwood treats quite readily. The heartwood is more refractory, but research has resulted in the development of processes which give excellent treatments without injuring the timber.

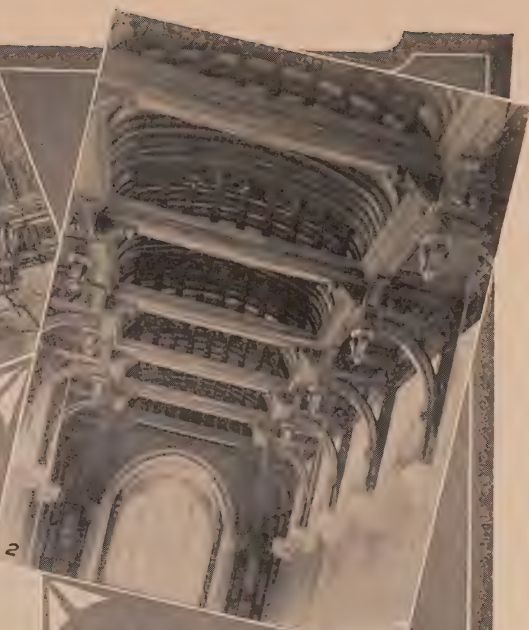
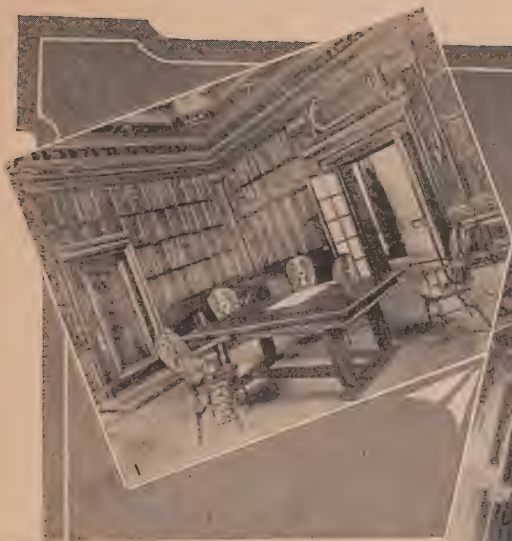
Douglas fir is an easy timber to season either in the open air or in a dry kiln. Little trouble occurs with checking, twisting, or cupping. Clear timber can be dried in a kiln at quite high temperatures without injury; in the common grades less severe schedules should be used in order to prevent checking or loosening of the knots, but the kiln-drying of common lumber is now fairly common practice. Douglas fir shrinks considerably in drying, but, once properly seasoned, does not change in size unduly with variations in humidity.

Typical Uses:

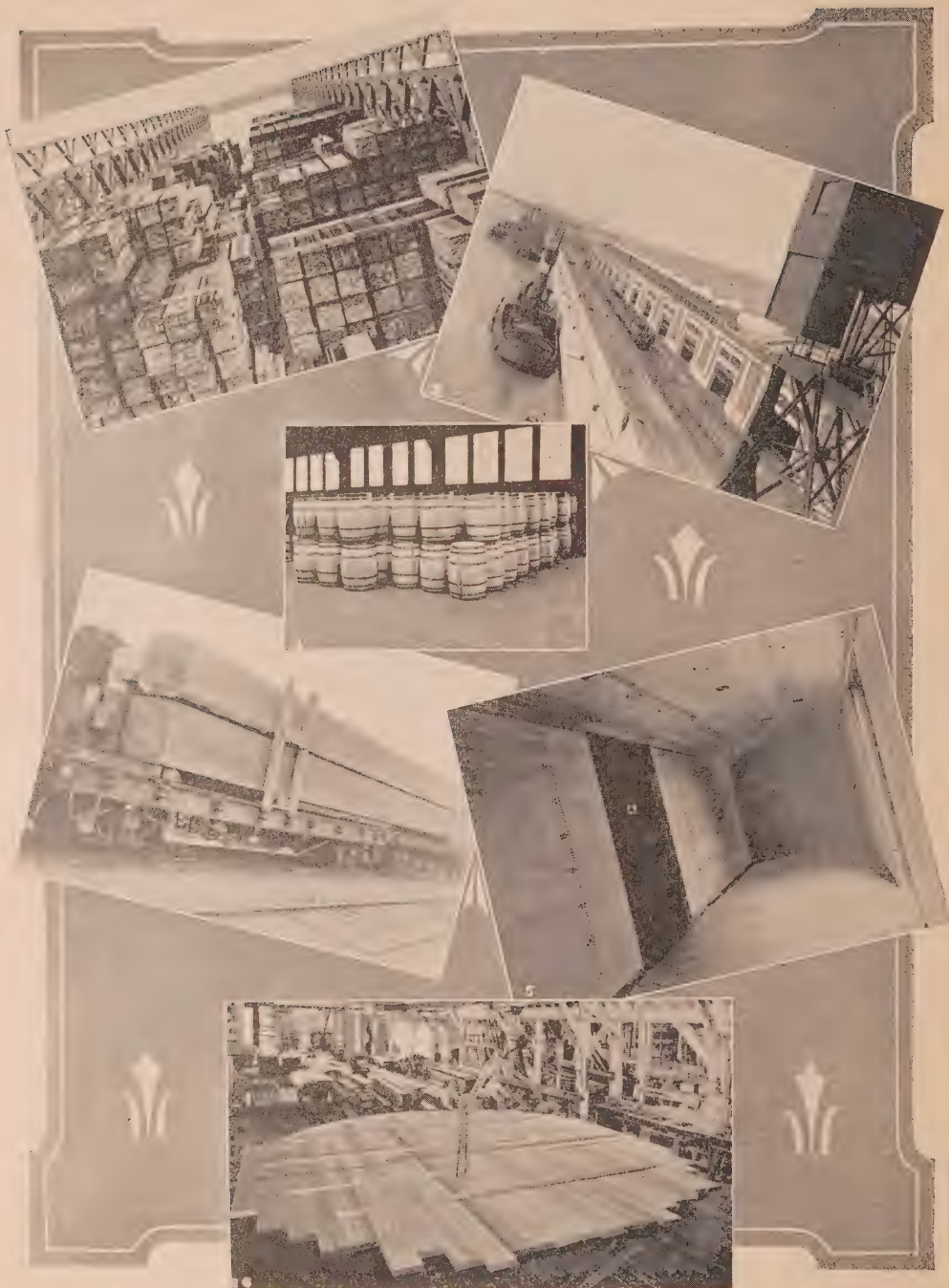
Heavy structural timbers	Barges
Dock and harbour works	Carpentry
Piling	Shipbuilding
Railway wagons	Flooring and flooring blocks
Sheathing and carcassing	Windows and doors
Slack and tight cooperage	Tanks and silos
Paving blocks	Motor car and truck bodies
Masts and spars	Agricultural implements
Telephone poles (treated)	Mine timbers
Veneers and plywood	Concrete form work
Joinery, interior and exterior	Railway sleepers
Ladders	

Douglas fir is exported as finished timber and as rough timber from 1-inch boards to large square timbers. It is exported in small squares 4 inches by 4 inches, and in very large and long squares up to 30 inches for special work as in wharf construction. It is also exported in large flitches and in half-timbers. In the best quality, lengths can be secured up to 32 feet, while in merchantable grades they may run as high as 80 feet or over. The grades exported are generally No. 2 clear and better, or prime, select merchantable, merchantable and commons.

An important development is the increase in the use in the United Kingdom of British Columbia standard sizes for carcassing. This stock is surfaced four sides or planed on one side and one edge, to finish $\frac{1}{4}$ -inch less than the nominal dimensions.



(1) Doors and panelling of Douglas Fir. (2) Douglas Fir ceiling in the chapel of Christ's Hospital School at Horsham, England. (3) Flats erected by the London County Council at Clapham Park Estate. Doors, windows, roofing timbers, carcassing are of Douglas Fir. (4) Part of Liverpool Corporation Housing Project of 246 tenements. Douglas Fir (scant size) used throughout for carcassing. (5) Addition to County Hall, Westminster Bridge, London. Douglas Fir was used for a great deal of the joinery.



(1) Unit piling of Western Red Cedar and Douglas Fir for loading by travelling crane. (2) Passenger and freight sheds, 1,800 feet long by 150 feet wide, that were constructed by the Southern Railway in connection with dock extension at Southampton, England, in which roof and roofing boards are of British Columbia Douglas Fir. (3) Douglas Fir barrels for shipment to Great Britain from British Columbia. (4) Douglas Fir timbers used in the construction of the Welland Ship Canal. (5) Douglas Fir lining and decking in a steel-framed freight car. (6) Floor of storage tank twenty-five feet in diameter made from Douglas Fir, $3\frac{1}{2}$ inches by 12 inches. No splicing permitted in any piece.



(1) Highway bridge over the Fraser river, Quesnel, British Columbia. Timbers of creosoted Douglas Fir framed before treatment. (2) Douglas Fir door. (3) Creosoted wood stave water pipe of Douglas Fir installed at a northern Quebec pulp mill. (4) Douglas Fir plywood used in the cabins of former Duchess of Bedford. (5) Photograph showing use of Douglas Fir in the construction of the new dock on the Antrim side of Belfast harbour. (6) Creosoted Douglas Fir piling for wharf construction.

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WESTERN RED CEDAR (*Thuja plicata*)

Western red cedar is the largest of the cedars native to North America, occasionally attaining a diameter of 15 feet or over and a height of 200 feet. In the forest it is generally from 3 to 8 feet in diameter and from 125 to 175 feet in height. The trunk tapers rapidly. It is found throughout the coastal district of British Columbia and in some of the valleys of the interior district where the precipitation is high, but it reaches its best development on Vancouver Island and the adjacent mainland.

It has a very thin sapwood which is of a light yellow tinge. The heartwood varies considerably in colour from a pinkish red to a deep warm brown, the latter shade being generally associated with old trees. The wood is straight-grained and splits readily and uniformly. It is quite soft and light, weighing only about 22 lbs. per cubic foot when air-dried.

The wood has exceptionally good working qualities and takes a smooth satiny finish. It takes stains and paints well and has good gluing properties. It contains considerable oil but practically no resin.

Western red cedar is an extremely durable wood in contact with the soil or in positions favouring decay, and for that reason is used for siding, fence posts, telegraph poles, sills, piling, culverts, greenhouses, conduits and other similar purposes. It is particularly valuable as shingles for roofing, for which purpose it is the most widely used wood in America.

Western red cedar seasons quite readily though it does not give up its moisture as quickly as Douglas fir. It is one of the lowest woods in shrinkage, and this characteristic, combined with its resistance to changes in moisture content, causes it to retain its size and shape exceptionally well after being properly seasoned. This is a factor which has made this wood much favoured in canoe and boat construction.

Typical Uses:

Shingles	Cabinets
Porch work	Panelling
Greenhouse construction	Certain classes of doors
Conduits	Clothes closets and chests
Fence post	Pattern making
Telegraph poles	Pencil slats
Railway sleepers (when suitably protected with plates under rails)	Boats and canoes
Joinery	Piling
Lath	Window sashes
	Weather boarding or siding

CANADIAN EXPORT TIMBERS

It is exported as No. 2 clear and better or prime, merchantable and common grades; also as shingles, the chief grade being called 5X, which is 16 inches in length. Shingles are rift-sawn to prevent warp or curl. Western red cedar is available for export as telegraph and telephone poles.



(1) Western Red Cedar ceiling, Knox Church, Ottawa. (2) Western Red Cedar trees. (3) The dining room in the Canadian Bank of Commerce, Toronto, paneled with Western Red Cedar. (4) The music room of Hart House, University of Toronto. Western Red Cedar has been used with a very pleasing effect in this room.



(1) House at Weybridge, Surrey, with Western Red Cedar shingle roof. (2) Thatched roof effect obtained with specially prepared Western Red Cedar shingles. (3) Sawn Western Red Cedar for roof covering. (4) Western Red Cedar bevel siding, shingle roof. (5) A lodge at Seigniory Club, Quebec, built of Western Red Cedar logs. The roof is of Cedar shingles.

CANADIAN EXPORT TIMBERS

HARDWOODS

Poplars

THERE are eight species of poplar native to Canada. Of these the more important are (1) black cottonwood (*Populus trichocarpa*), a large tree found in the valleys along the Pacific Coast and in the rich bottom land along the rivers of interior British Columbia (this wood is used principally for veneers, soda pulp and match sticks); (2) balsam poplar (*Populus balsamifera*), and (3) trembling aspen (*Populus tremuloides*). The last-named is the most important species commercially.

TREMBLING ASPEN (*Populus tremuloides*)

The trembling aspen is not a very large tree, being generally from 8 to 12 inches in diameter and 50 to 65 feet in height, but occasionally attaining a diameter of 24 inches and a height of 90 feet. It has a wide distribution, extending completely across Canada from the Atlantic to the mouth of the Mackenzie River and to Alaska. It usually occurs as a temporary type after fire and is often associated with white birch or with certain of the conifers such as pine, spruce and balsam.

The wood is quite light in colour and soft. It is also light in weight, about 28 lbs. per cubic foot, air-dry. It is not durable when exposed to conditions favouring decay, but for certain uses it is quite suitable, and on account of its abundance in Canada is attracting increasing attention.

Aspen is rather difficult to season, being inclined to twist and warp unless carefully piled for drying. It works quite well and has good nail-holding properties.

Typical Uses:

Soda pulp	Woodwool
Matches	Pails
Corestock	Brush backs
Boxes	Novelties
Baskets	Veneers and plywood

It has not been exported as yet in large quantities, but round logs for matches as well as sawn lumber for boxes and core stock have been shipped.

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YELLOW BIRCH (*Betula lutea*)

This species is sometimes called "red birch" and "black birch." It is found from the Maritime provinces westward to the east end of Lake Superior, also from the west end of this lake to the Lake of the Woods along the Canada-United States boundary. It is the most important commercial hardwood in Canada on account of its fine qualities and its abundance. It is the largest of the birches native to Canada, being sometimes 100 feet high with a diameter of from 2 to 3 feet. In the forest it is usually from 20 to 30 inches in diameter and from 60 to 80 feet in height, and has a long clear trunk with moderate taper.

The sapwood is of a light yellow colour and the heartwood a distinctive reddish brown. The wood is of uniform texture and, while the grain is not very pronounced, it produces lumber with a very pleasing, subdued figure. The wood may be ranked among the heavy hardwoods. It is almost identical with white oak in hardness and nearly as hard as maple. It is a little lighter in weight than oak and maple, and ranks with them as a hardwood capable of exacting uses and as a hard-wearing wide-utility wood. It weighs about 44 lbs. per cubic foot, air-dry.

Yellow birch takes a smooth finish, is quite easily worked under tools, and takes a good polish. It is increasing in popularity as a furniture wood and for high-class interior finish and decoration. Some logs produce curly-grained birch, which is much prized for furniture and for veneers of the rotary-cut type.

Yellow birch has high mechanical properties, in this respect again being very similar to white oak.

Yellow birch for ordinary purposes is quite durable, but should not be used in conditions favourable to decay without treatment. It can, however, be treated quite readily and uniformly, and is used, when so treated, quite extensively in Canada for railway sleepers.

The heavy hardwoods are generally considered difficult to season, but yellow birch seasons with very little difficulty either in the open air or in dry-kilns. In general, where kiln-dried material is required, the stock is first air-seasoned. The shrinkage in seasoning, as in white oak, is fairly high, but very uniform with respect to the radial and tangential direction so that there is little trouble with distortion or with subsequent "working."

CANADIAN EXPORT TIMBERS

Typical Uses:

Flooring
Furniture
Flush doors
Interior finishing
Cabinet work
Motor car body frames
Brush backs
Rungs for ladders
Boxes and crates
Boot and shoe findings
Toys and sporting goods

Veneers and plywoods
Railway sleepers
Railway coach work
Turnery
Chairs
Woodenware
Tin-plate boxes
Shuttles, spools, bobbins
Parquetry
Joinery
Cooperage

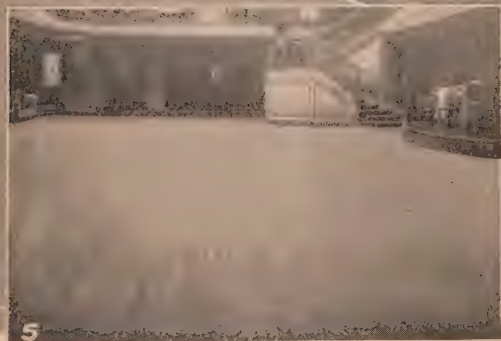
Birch is exported generally in thicknesses from 1 inch to 4 inches, and in widths 4 inches and over; lengths 6 feet and up. Most of the birch exported is graded according to the National Hardwood Lumber Association rules, but for some markets it is graded as prime, select and merchantable.



(1) Restaurant furniture of Yellow Birch. (2) Yellow Birch takes an attractive finish and is an excellent furniture wood. (3) Yellow Birch makes an attractive hard-wearing floor. (4) Breakfast room furniture of Yellow Birch.



(1) Interior of private railway carriage, finished in curly Yellow Birch. (2) Yellow Birch plywood for containers. (3) Yellow Birch makes attractive panelling and is used in homes of distinction. (4) A panel of treated Yellow Birch.



(1) Street car with interior finish of Yellow Birch. (2) Yellow Birch was used throughout for interior finishing in the Confederation Building of the Dominion Government, Ottawa. (3) Creosoted laminated Yellow Birch flooring for harbour construction, Saint John, New Brunswick. (4) An interior view of the Y.W.C.A. Girls' Club, Kirkcaldy, Scotland, showing a room with Yellow Birch flooring. (5) Ball room floor of Yellow Birch, St. James Hotel, Torquay, England.

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WHITE BIRCH (*Betula papyrifera*)

The name "white birch" is applied to several birches which have white bark, but the principal one is *Betula papyrifera*, often known as paper or canoe birch. White birch has a very wide range in Canada, being found from the Maritime Provinces westward to the Yukon and nearly to the mouth of the Mackenzie River.

White birch is a comparatively small tree, rarely exceeding 70 feet, in height and 18 inches in diameter. Generally it is from 50 to 60 feet in height and from 10 to 14 inches in diameter and comparatively free of branches.

The wood is creamy-white in colour. Among the hardwoods it may be classed as of medium hardness and weight, in these two respects being below yellow birch, maple, oak, beech and the other heavy hardwoods, but higher than poplar, basswood, chestnut and other light hardwoods. It weighs about 40 lbs. per cubic foot, air-dry.

The wood works exceptionally well under tools and while not as strong as yellow birch, is a tough, serviceable wood. It is not durable under conditions favourable to decay.

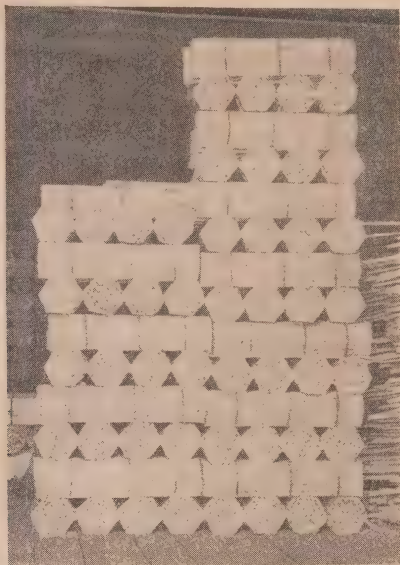
With care it seasons quite satisfactorily, its shrinkage being somewhat less than for the heavier hardwoods such as yellow birch, hard maple, and white oak.

Typical Uses:

Spools	Brushes
Bobbins	Hoops
Dowels	Novelties
Clothes pins	Washboards
Shoe pegs	Skewers
Shooks	Small handles
Woodenware	Crates
Kitchen utensils	Toys
Buckets	Crutches

For the export market white birch is generally shipped in the form of squares from 1 inch to $2\frac{1}{2}$ inches to the side and from 20 inches to 42 inches in length.

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White birch dowel-wood



Timber storage facilities in Great Britain provide for rapid distribution of Canadian timber.

CANADIAN EXPORT TIMBERS

SUGAR MAPLE (*Acer saccharum*)

There are in Canada nine species of maple, but the sugar maple or, as it is frequently called, the hard maple, is the chief commercial species. It is quite a large tree, sometimes reaching a height of 125 feet and a diameter of 3 feet, but it is generally from 20 to 30 inches in diameter and from 80 to 90 feet in height, with a fairly clear trunk. Sugar maple is found from Nova Scotia to the Lake of the Woods south of the height of land between Hudson Bay and the Great Lakes. Its range in commercial size is, however, much more restricted. Next to yellow birch it is the most important commercial hardwood in Canada both from the standpoint of variety of uses and availability of supply.

The wood is light in colour with little difference between the heartwood and sapwood; it is of a creamy-white shade. Occasionally in the larger trees and on some sites a darker-brown heart develops. The annual rings are fairly well marked by a narrow brown line which gives the wood quite a pleasing figure when cut flat-grain. Sugar maple is the hardest and heaviest of the important Canadian commercial hardwoods, in these two respects exceeding yellow birch, though not greatly. Its weight in the air-dry condition is about 47 lbs. per cubic foot. It has splendid resonance properties.

For a wood of its hardness, maple works quite easily. It takes a fine smooth surface and a high polish. Maple turns exceptionally well. It has excellent gluing properties and holds nails and screws well, but on account of its hardness offers considerable difficulty in nailing. Maple is easy to stain and takes enamel and paints satisfactorily. Curly maple and bird's-eye maple are particularly prized for furniture.

Maple is a very strong, stiff wood, exceeding white oak in these respects. It is therefore used extensively in frame and body work. When treated with preservatives it is used in Canada for railway sleepers. Untreated maple is not considered a very durable wood in exposed situations favouring decay. It offers considerable resistance to penetration by creosote, but by incising before treatment a very satisfactory penetration can be obtained.

Although maple seasons slowly, with proper care it can be dried in the open or in dry-kilns without undue difficulty. Its shrinkage is fairly high and is closely similar to that of yellow birch. For many purposes maple and birch are used in Canada without differentiation.

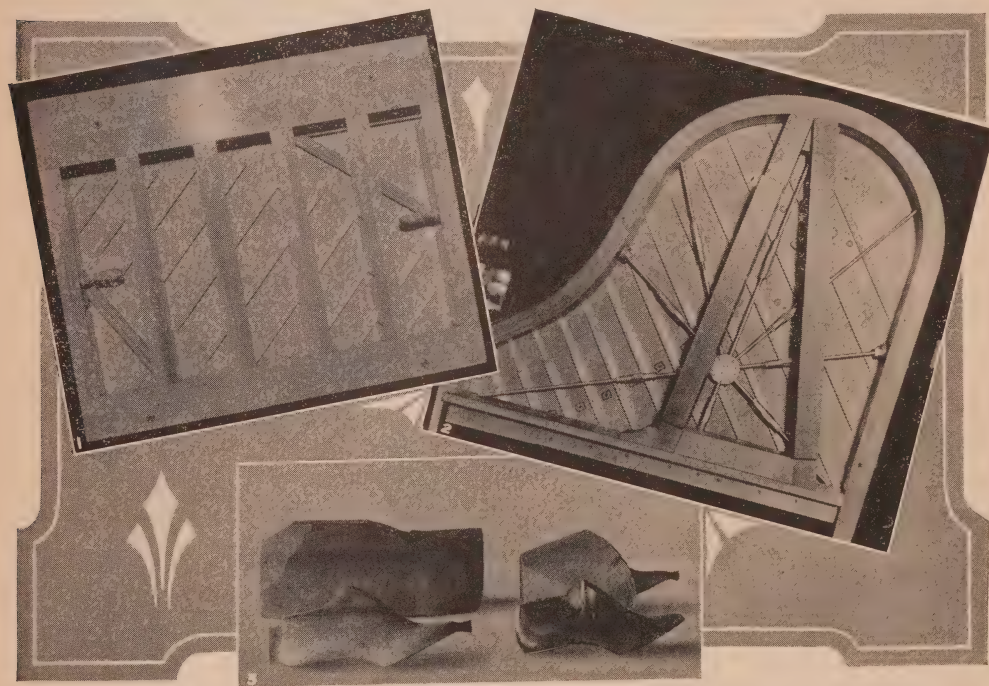
CANADIAN EXPORT TIMBERS

Typical Uses:

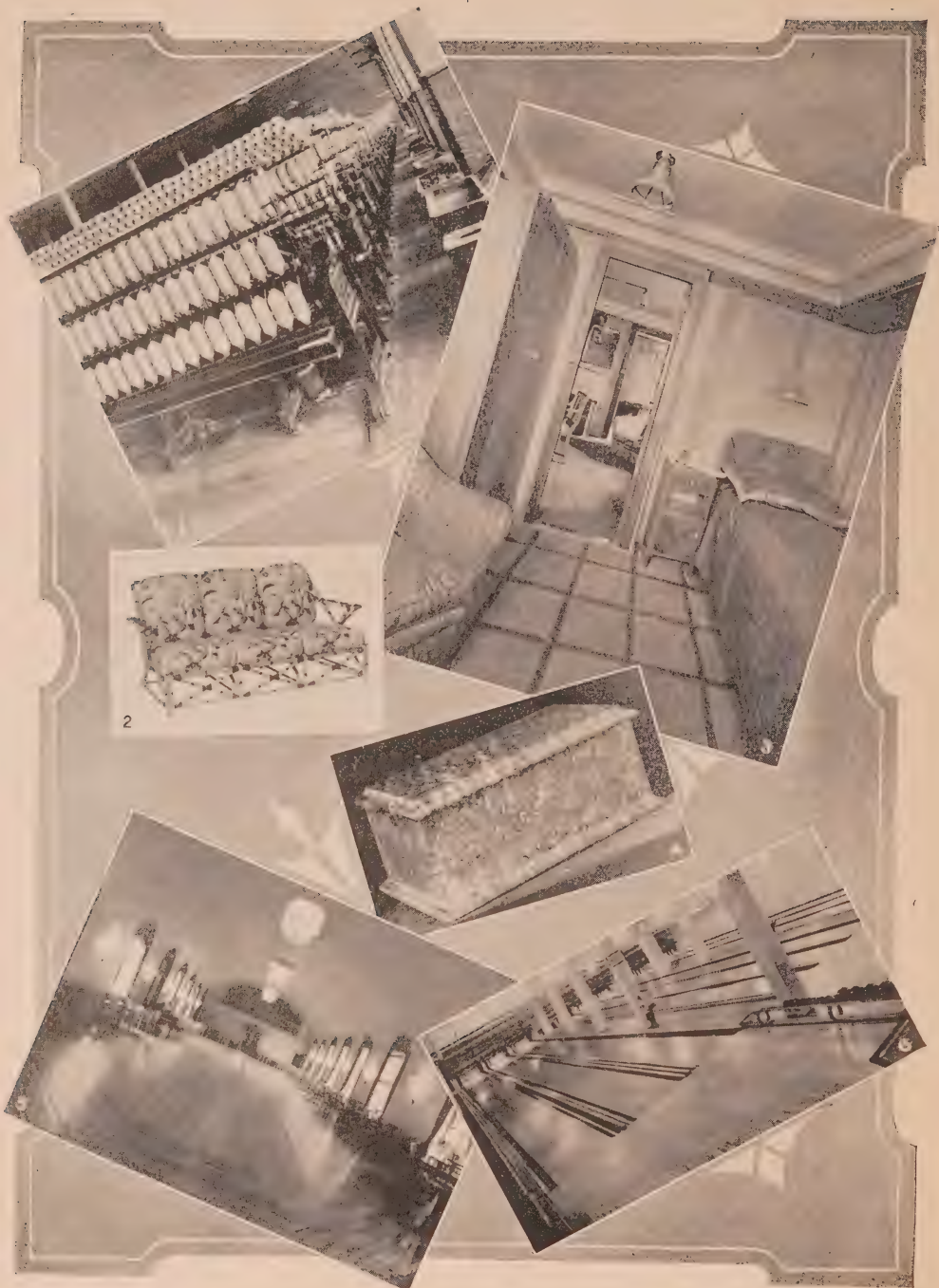
Flooring (house, warehouse,
public buildings)
Interior finishing
Panels
Furniture
Piano actions
Printing and press rolls
Shoe findings
Agricultural implements
Turnery

Musical instruments
Sporting goods
Butcher blocks
Bowling alleys
Railway sleepers
Dairy and laundry appliances
Railway coach work
Electrical apparatus
Cabinet making
Mangle rolls

Maple is shipped in rough and finished flooring strips generally 1 inch by 4 inches; also in strips 1 inch and $1\frac{1}{4}$ inches thick, 3 inches and wider for the manufacture of flooring blocks. A good deal of maple is shipped in thicknesses of from 1 inch to 4 inches, widths 4 inches and up, and lengths 6 feet and over. It is generally graded according to the rules of the National Hardwood Lumber Association, or in some cases to special grades established by usage for particular markets or purposes.



(1) Piano frame of Maple, sounding board of Spruce. (2) Maple is used in the laminated frame and in the cross bracing of this grand piano; Spruce in the sounding board. (3) Maple is used for shoe findings.



(1) Bobbins of Maple in a textile plant. (2) The framework is of Maple in the round. (3) Maple panelling in a first-class cabin of former Empress of Britain. (4) Box of Bird's-eye Maple. (5) Maple flooring in the ballroom, Clifton Zoological Gardens, Bristol, England. (6) Maple used for bowling alleys and bowling pins.

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BASSWOOD (*Tilia americana*)

Basswood is one of the most widely useful woods among the softer hardwood species. It is found in Canada from the Atlantic Coast westward to southern Manitoba. Ordinarily it is from 60 to 70 feet high and from 15 to 30 inches in diameter, but sometimes reaches a height of over 100 feet and a diameter of 4 feet.

The wood is light in colour, shading from a creamy white to a very light brown. In weight and hardness it is slightly higher than white pine and very nearly the same as red pine. It weighs about 29 lbs. per cubic foot, air-dry.

It works exceptionally well under tools and is quite a favourite wood for hand-carving and modelling. It takes a smooth finish, takes and holds paints and lacquers in an excellent manner, and has good gluing and nail-holding properties. It has practically no taste or odour and is therefore used for containers for foodstuffs.

Basswood is not a strong wood in comparison with the heavier hardwoods such as birch or maple, but is more nearly similar to the lighter pines in strength.

It is not a durable wood when exposed to conditions favouring decay.

It seasons quite readily without undue difficulty with respect to checking and twisting, has high shrinkage factors, but after proper seasoning does not "work" unduly.

Typical Uses:

Piano keys	Patterns and models
Turnery	Wood wool
Baskets	Beekeeper's supplies
Woodenware	Picture frames
Wood specialties	Musical instruments
Hand carving	Barrel headings
Boxes and crates	Cigar boxes
Cupboards	Drawing boards
Blinds	Handicraft work
Veneers	Enamelled work
Toys and games	

While exported to some extent, the quantities are not large. Demands are mostly for piano key stock usually from 1 inch to $2\frac{1}{2}$ inches in thickness, from 6 inches to 16 inches in width, and from 6 feet to 18 feet in length.



(1) A Basswood tree. (2) Kitchen table top in centre, and other typical uses for Basswood.
 (3) Basswood logs being loaded at Montreal for shipment to the United Kingdom.

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WHITE ELM (*Ulmus americana*)

The white elm is one of the largest hardwood trees found in Canada, occasionally attaining a diameter of over 5 feet and a height of 100 feet. In the forest it is from 2 to 3 feet in diameter and from 70 to 90 feet in height, with a long clear trunk. It is found in all provinces of Eastern Canada.

The sapwood is quite light in colour, but the heartwood is a light reddish-brown. It is considerably lighter in weight and softer than yellow birch, white oak and sugar maple, but in these respects superior to the softer hardwoods such as basswood and poplar. It weighs about 42 lbs. per cubic foot, air-dry.

It works fairly well under tools and takes a good finish.

While not as stiff as the heavy hardwoods, it is quite a strong wood and is especially prized for its toughness and good bending properties. It is therefore used for hoops, baskets, barrel staves, etc., which have to be bent to shape. It is fairly durable.

White elm seasons quite easily and is of moderate shrinkage.

Typical Uses:

Slack cooperage	Barrel staves
Crating and boxes	Agricultural implements
Cheese boxes	Carriage hubs
Hockey sticks	Machinery parts
Trunks	Hoops
Coffins and caskets	Pails
Handles	Church pews
Baskets	Furniture
Ladders	Veneers
Chairs	Woodenware

White elm is not exported in large quantities, and when exported it is generally for the manufacture of coffins, which require 1-inch timber of good width.



(1) Elm veneer is used for cheese boxes. (2) White Elm tree. (3) Elm church pews. Western Red Cedar beamed ceiling. (4) Elm is favoured for apple barrel staves and hoops; considerable spruce is also used for staves and headings.

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ROCK ELM (*Ulmus Thomasi*)

Rock elm is sometimes called "cork elm." It is not a large tree, being only about 2 feet in diameter and from 50 to 60 feet in height. In Canada it is confined to the southern parts of the provinces of Quebec and Ontario.

In colour it is somewhat similar to the wood of white elm, but the contrast between heartwood and sapwood is not so pronounced. It is a hard and heavy wood, exceeding considerably other Canadian elms and white oak in this respect. Its weight is about 49 lbs. per cubic foot, air-dry.

It is rather a difficult wood to work but finishes to a fairly smooth surface. It holds nails exceptionally well, takes a good polish, and holds stains and paint very satisfactorily.

Rock elm is a very strong, tough wood, and is used as a specialty wood where strength and hard wear are important, as for example in ice hockey sticks and boat ribs. It is also very durable and is used for dock and wharf construction in places which come in contact with vessels. It is used also for ship's belting.

Care has to be exercised in seasoning this wood, as it is inclined to check and twist. It shrinks considerably in drying.

Typical Uses:

Agricultural implements	Whiffle trees
Framework for furniture	Machine handles
Rockers	Rubbing strips for wharfs, etc.
Gymnasium equipment	Boat construction
Hockey sticks	Fenders
Motor car bodies	Bentwork
Motor buses	Ship's belting
Double trees	

It is exported only in small quantities generally for special purposes, frequently as round logs and sometimes as hewn logs. These are generally from 20 to 40 feet in length with a diameter at the small end of 12 inches and up.

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Additional Canadian Species

In addition to the timbers which have been classified as export timbers and already described, there are in Canada quite a large number of timbers, both softwoods and hardwoods, which are of very considerable importance in Canada for domestic use or for export to the United States market. Some of these occur in large quantities, but on account of their distance from ports, heavy rail haulage charges are involved for overseas export. In other cases the home market consumes the full available quantities. In a few cases the timbers omitted from the export list are available in large quantities to seaports, but export trade in them has not yet been developed to any extent. No sharp line can be drawn between them and some of the less important timbers included as export timbers.

- Ponderosa pine: *Pinus ponderosa* Laws.
- Lodgepole pine: *Pinus contorta* Dougl. var. *latifolia* Engelm.
- Tamarack: *Larix laricina* (Du Roi) K. Koch.
- Western larch: *Larix occidentalis* Nutt.
- Engelmann spruce: *Picea Engelmanni* Parry.
- Eastern white cedar: *Thuja occidentalis* L.
- Balsam fir: *Abies balsamea* (L.) Mill (Marketed with Spruce.)
- Grand fir: *Abies grandis* (Dougl.) Lindl.
- Amabilis fir: *Abies amabilis* (Dougl.) Forb.
- Yellow cedar: *Chamaecyparis nothkatensis* (D. Don.) Spach.
- Butternut: *Juglans cinerea* L.
- Hickory: *Carya ovata* (Mill.) K. Koch, and *Carya cordiformis* (Wangh.) K. Koch.
- Red alder: *Alnus rubra* Bong.
- Ironwood: *Ostrya virginiana* (Mill.) K. Koch.
- Beech: *Fagus grandifolia* Ehrh.
- Chestnut: *Castanea dentata* (Marsh.) Borkh.
- White oak: *Quercus alba* L.
- Red oak: *Quercus borealis* Michx. f.
- Black cherry: *Prunus serotina* Ehrh.
- Broad-leaved maple: *Acer macrophyllum* Pursh.
- Silver maple: *Acer saccharinum* L.
- White ash: *Fraxinus americana* L.
- Black ash: *Fraxinus nigra* Marsh.
- Black cottonwood: *Populus trichocarpa* Torr. & Gray.

PROPERTIES OF CANADIAN EXPORT TIMBERS In Air-Dry Condition (12 per cent approximately)

Species	Weight per cu. ft., in pounds	Static bending		Compression		Hardness	Shrinkage			
		Modulus of rupture lb. per sq. in.	Modulus of elasticity 1,000 lb. per sq. in.	Crushing strength at maximum load lb. per sq. in.	Compressive stress at elastic limit lb. per sq. in.		Average of Radial and tangential pounds	Volu- metric	Radial	Tan- gen- tial
SOFTWOODS:										
Pine, White	26	10,400	1,460	5,780	580	405	8.2	2.4	6.3	
" Western White	26	9,000	1,450	5,200	450	375	10.7	3.7	6.8	
" Red	28	10,100	1,400	5,360	740	470	10.0	3.9	6.8	
" Jack	31	10,800	1,460	5,700	790	565	9.7	4.0	5.9	
Spruce, Black	30	10,300	1,520	5,850	620	525	11.5	3.7	6.9	
" Red	28	8,900	1,450	5,300	500	460	11.9	4.0	8.0	
" White	26	8,700	1,390	5,000	480	415	10.8	3.4	6.4	
" Sitka	27	10,400	1,720	5,500	650	535	11.7	4.6	7.8	
Hemlock, Eastern	29	9,400	1,220	5,680	630	535	10.1	3.1	6.1	
" Western	30	11,100	1,690	6,390	650	580	12.9	5.3	8.5	
Douglas Fir	33	13,400	1,920	7,470	960	695	11.8	4.7	7.7	
Cedar, Western Red	23	7,900	1,200	4,980	530	345	7.8	2.1	4.2	
HARDWOODS:										
Poplar	28	9,500	1,510	4,880	490	450	11.7	3.6	6.6	
Birch, Yellow	43	15,800	2,140	7,730	990	1,275	15.5	5.8	7.1	
" White	40	14,000	1,880	6,710	980	1,010	14.1	5.2	7.2	
Maple, Sugar	47	16,100	2,120	7,730	1,350	1,655	15.8	4.7	8.6	
Basswood	29	8,700	1,400	4,920	370	495	18.4	6.7	9.3	
Elm, White	39	12,000	1,520	5,440	880	1,025	15.1	4.6	8.6	
" Rock	49	16,300	1,950	7,230	1,320	1,600	15.8	5.4	10.3	



CANADIAN EXPORT TIMBERS

PLYWOOD AND VENEERS

The production of plywood and veneer was greatly expanded in Canada during the war years, and this expansion has continued in the post-war period. Plywood production has quadrupled since 1939, and very substantial increases have been made in the production of veneers.

Plywood is manufactured in Canada from both hardwoods and softwoods. Softwood plywood manufacture is centred chiefly on the West Coast; hardwood plywood manufacture is carried on very largely in Eastern Canada.

The principal species manufactured into plywood are Douglas fir (Oregon pine), and western hemlock on the West Coast, birch, maple, elm, and basswood in the East. A number of other species are manufactured in lesser quantities, including ash, poplar, cherry, oak, western white pine, western red cedar, Sitka spruce, and a number of imported species such as mahogany, walnut, and okume (Gaboon).

The first plywood mill in British Columbia commenced operations in 1912. Its production was consumed in the manufacture of panels for a door-making plant. Subsequently, other plants were opened for the production of fir plywood, and now Canada's annual production of softwood plywood is approximately 150,000,000 square feet.

Prior to 1940, a large part of the hardwood plywood consisted of box grade panels. Substantial quantities of this plywood were exported for the manufacture of tea-chests. Since that time, however, great changes have taken place in the industry. New plants have been opened and older plants rehabilitated and reconstructed and modernized, resulting in the development of high standards of production. During the war 10 mills were engaged in the production of birch and maple veneers and plywoods suitable for such highly technical uses as the manufacture of aircraft components, airscrews, fuselages, wing coverings, and also technical plywood made to very close manufacturing tolerances for military and other stores and vehicles. The production of aircraft plywoods alone rose to approximately 35,000,000 square feet annually in the last two years of the war.

In the post-war period a number of plants have materially increased their output of both softwood and hardwood veneers of high quality. In Eastern Canada there are now twenty-three plants producing veneer and plywood and a number of others are being built to supply the increased demands of export markets.

CANADIAN EXPORT TIMBERS

The use of plywood is expanding as its properties are becoming more widely appreciated. It is replacing solid wood construction increasingly in the furniture and allied industries and for flooring, corestock, concrete form work, structural panels, and sheathing for houses of wooden construction. The large sizes in which it is obtainable materially assists in speeding up construction of dwellings. Its smooth, unbroken surface makes it useful for such purposes as linings for railroad cars, bins, chutes, car bodies, bus bodies, boat sheathing, etc., and the ease with which it can be fabricated makes it the preferred material for a multitude of other applications.

As the result of wartime research, curved plywood manufacture has become an increasingly important development of the plywood industry. Barrels and kegs are now being manufactured in Canada from veneers moulded to various contours and glued into plywood under heavy pressure. These barrels, in some instances, are cylindrical and are manufactured in one piece; in others, barrel staves of uniform shape are moulded and made into barrels by the usual methods. The staves are interchangeable, permitting simple recoopering of damaged barrels. Curved plywood trim is being produced in considerable quantity and moulded plywood boats, canoes, radio cabinets, and similar products have been developed and are being constantly improved. The application of high-frequency dielectric heating has greatly increased the facility with which the manufacture of curved plywood constructions can be made. It has been found that veneers of Canadian manufacture are well adapted to all the many various applications that are required in a versatile industry such as plywood moulding.

CANADIAN EXPORT TIMBERS

LUMBER GRADING

Grading in Canada is under the authority of the various lumber associations, from which certificates of grade may be obtained.

Canadian spruce is available according to the rules of the Maritime Lumber Bureau, Amherst, Nova Scotia, or to rules adopted by the Canadian Spruce Bureau of the Canadian Lumbermen's Association, Ottawa, Ontario. White and red pine are classified for quality in accordance with rules used by the White Pine Bureau of the Canadian Lumbermen's Association. In British Columbia, the export grading of certain species, including Douglas fir, Western hemlock, Sitka spruce and Western red cedar, is under the authority of the Pacific Lumber Inspection Board, Vancouver, B.C.

The hardwood species are graded in accordance with the rules of the National Hardwood Lumbermen's Association, which have been adopted by the Hardwood Bureau of the Canadian Lumbermen's Association.

FOREST SERVICE PUBLICATIONS

The Dominion Forest Service for a number of years has been active in the advancement of scientific knowledge of all factors relating to the economics, growth and use of Canadian timber, and in the compilation of a national forest inventory. Where more detailed information is desired regarding forestry in Canada, enquiries may be addressed to the Dominion Forester, Dominion Forest Service, Ottawa.

The Forest Products Laboratories, which are a unit of the Dominion Forest Service, issue publications on a wide range of subjects which include the mechanical properties of Canadian woods, adhesives and plywoods; use of dielectric heating for edge-gluing and bonding laminated material; manufacture and design of containers; micro-structure and identification of Canadian woods; kiln and air seasoning of lumber; storage and shipment of seasoned lumber; chemistry of wood; preservative and fire-retardant treatments for wood; uses for Canadian woods and by-products, such as sawdust, shavings, bark, etc.; calorific values; improved manufacturing techniques; significance of decay; effect of certain stains or colorations on wood properties; pulp, paper and related products.

A list of publications issued by the Laboratories is available on request to the Superintendent, Forest Products Laboratories, Ottawa.



Above—Forest wealth to the north of Ottawa, Canada's capital, showing large booms of logs on one of the many rivers that float them to paper mills and saw mills.



Left—Air view of timbered territory on the slopes of the Rocky Mountains, in Western Canada, where grows the Douglas Fir, Sitka Spruce and other species.

R.C.A.F. Photos

CANADIAN EXPORT TIMBERS

Appendix A

CLASSIFIED USES OF CANADIAN WOODS

Wood is used for such a variety of purposes that it would be practically impossible to compile a complete list of its industrial uses and to show the species most suitable for each particular use. However, so great is the demand for information of this nature with regard to Canadian species, that an attempt has been made herein to indicate the more important industrial uses of wood and the Canadian species most commonly employed for such uses.

The choice of a wood for a particular purpose is not always made strictly on the basis of suitability, but may be influenced by considerations of cost and availability. These lists should not be interpreted as including all the woods which may be or are used for a particular purpose, but rather those which are deemed most suitable for such purpose, due consideration being given to practical experience from using them and to the study of their inherent properties.

Aeroplanes

Longerons

White ash
Spruce

Ribs, webs, cap strips

Spruce
White pine
Basswood

Veneers

Yellow birch
Black cottonwood
Sitka spruce
Sugar maple
Basswood
Black walnut

Flooring and planking

Spruce
White pine
Western white pine
Western red cedar

Reinforcing, bearing blocks

Rock elm
Sugar maple
White ash
Yellow birch

Propellers

Black walnut
White oak
Yellow birch
Sugar maple

Agricultural Implements

Pine
Douglas fir
Spruce
White ash
Elm
Western hemlock
Oak
Basswood
Beech
Birch
Hickory
Sugar maple
Ironwood
Western larch

Artificial Limbs

Willow
Ash
Yellow birch
Sugar maple

Automobile Bodies

Frames

Yellow birch
Sugar maple
Soft maple
White ash
Elm
Beech
Oak

Flooring, running boards

Yellow birch
Douglas fir
Maple
White ash
Oak

Trim

Black walnut
Oak
Yellow birch
Sugar maple

Steering wheels

Sugar maple
Yellow birch
Black walnut

Wheel spokes

Hickory

CANADIAN EXPORT TIMBERS

Battery Separators

Yellow cedar
Basswood
Douglas fir

Bobbins and Shuttles

Sugar maple
Yellow birch
Oak
White ash
Beech
Hickory

Boot and Shoe Findings

Sugar maple
Yellow birch
Beech
Basswood
Douglas fir
White pine
Western white pine

Butcher Blocks

Sugar maple
Yellow birch
Beech

Church Pews

Oak
Yellow birch
Soft elm
Chestnut
White ash
White pine
Douglas fir
Basswood
Western hemlock

Coffins and Caskets

Yellow birch
Pine
Spruce
Basswood
Ash
Soft elm
Oak
Sugar maple
Black walnut
Beech
Cedar
Chestnut
Black cherry
Douglas fir

Containers

Boxes and crates, general

Spruce
Pine
Hemlock
Douglas fir
Basswood
Birch
Western larch
Poplar
Tamarack
Maple
Fir
Black cottonwood
Beech
Ash
Elm
Cedar

Baskets

Basswood
Sitka spruce
Western hemlock
Birch
Ash
Soft elm
Douglas fir
Poplar
White pine
Western white pine
Soft maple

Battery boxes

Yellow birch
Yellow cedar
Western red cedar
Soft maple
Soft elm
Beech
Poplar
Ash

Cable drums

Red pine
Douglas fir
Western hemlock

Cheese drums

Soft elm
Birch
Pine
Spruce
Fir

Poplar

Basswood

Cigar and tobacco boxes

Basswood
Western red cedar
Pine
Spruce
Soft elm

Food boxes and crates

Spruce
Fir
Western hemlock
Basswood
Pine
Soft elm
Poplar

Heavy export boxes and crates

Yellow birch
Douglas fir
Hemlock
Soft maple
Spruce
Pine
Soft elm
Basswood
Beech
Ash
Poplar

Plywood for cases

Birch
Douglas fir
Black cottonwood
Sitka spruce
Maple
Soft elm
Western larch

Barrel-staves, slack cooperage

Elm
Spruce
Douglas fir
Soft maple
Oak
Pine
Hemlock
Fir
Poplar
Ash

CANADIAN EXPORT TIMBERS

Staves, tight cooperage

Soft elm
White oak
Yellow birch
Douglas fir
White ash
Soft maple
Basswood

Heading, slack and tight cooperage

Soft elm
Douglas fir
Oak
Birch
Basswood
Ash
Soft maple
Pine
Spruce
Fir
Hemlock
Poplar

Construction

Buildings, general scaffolding

Spruce
Douglas fir
Western hemlock
Fir
Eastern hemlock
Western larch
Pine
Tamarack

Concrete forms

Spruce
Douglas fir
Western hemlock
Eastern hemlock
Pine
Western larch
Fir
Tamarack
Western red cedar

Buildings, framework

Spruce
Douglas fir
Pine
Western hemlock
Eastern hemlock
Fir

Western larch

Tamarack

Western red cedar

Sheathing and subflooring

Douglas fir

Hemlock

Pine

Spruce

Fir

Western larch

Windows door frames, and window sash

White pine

Western white pine

Red pine

Ponderosa pine

Douglas fir

Yellow cedar

Western red cedar

Western larch

Siding and exterior trim

Western red cedar

White pine

Western white pine

Douglas fir

Western hemlock

Red pine

Ponderosa pine

Eastern hemlock

Spruce

Western larch

Shingles

Western red cedar

Eastern white cedar

White pine

Yellow cedar

Eastern hemlock

Lath

Pine

Douglas fir

Western red cedar

Spruce

Western hemlock

Western larch

Interior finish and woodwork

Douglas fir

Yellow birch

Oak

White pine

Western red cedar

Western hemlock

Western larch

Western white pine

Basswood

Spruce

Red pine

Ponderosa pine

Chestnut

Butternut

Walnut

Yellow cedar

Doors

Douglas fir

White pine

Spruce

Yellow birch

Oak

Ponderosa pine

Western white pine

Western red cedar

Yellow cedar

Western hemlock

Western larch

Maple

Black cherry

Flooring

Sugar maple

Yellow birch

White oak

Red Oak

Douglas fir

Beech

Western hemlock

Western larch

Red pine

Ponderosa pine

Soft maple

White birch

Spruce

Buildings, industrial framework

Douglas fir

Pine

Spruce

Hemlock

Western larch

Western red cedar

Sills, untreated

Western red cedar

CANADIAN EXPORT TIMBERS

Eastern cedar
Eastern hemlock
Douglas fir
Western larch

Heavy flooring

Yellow birch
Sugar maple
Oak
Beech
Douglas fir
Western hemlock
Eastern hemlock
Western larch
Red pine
Tamarack

Barn boards

White pine
Red pine
Douglas fir
Spruce
Western red cedar
Ponderosa pine
Western white pine
Western hemlock
Eastern hemlock
Western larch
Fir

Rafters, roof plankings

Pine
Douglas fir
Spruce
Eastern hemlock
Western hemlock
Western red cedar
Western larch

Docks and wharves (for permanent construction or where exposed to marine borers, timbers should be treated)

Piling, cribwork, stringers

Douglas fir
Red pine
Tamarack
Western larch
Western hemlock
Eastern hemlock
Jack pine
Lodgepole pine
Western red cedar

Eastern cedar
Yellow cedar
Spruce
Hardwoods (occasionally)

Plankings

Yellow birch
Sugar maple
Douglas fir
Red pine
Eastern hemlock
Western hemlock
Western larch
Beech
Spruce
Western red cedar

Fenders

Rock elm
Douglas fir
Western larch
Eastern hemlock
Tamarack

Highway bridges

Posts, columns, sills

Douglas fir
Western larch
Tamarack
Eastern cedar
Western red cedar
Eastern hemlock
Red pine

Truss members, floor beams and stringers

Douglas fir
Western larch
Tamarack
Western hemlock
Eastern hemlock
Red pine

Flooring

Yellow birch
Douglas fir
Sugar maple
Western larch
Eastern hemlock
Western hemlock
Red pine

Fencing

Spruce
Pine
Western red cedar

Eastern cedar
Douglas fir
Eastern hemlock
Western hemlock
Tamarack

Highway culverts, drains

Western red cedar
Eastern cedar
Douglas fir
Western larch
Eastern hemlock
Tamarack

Greenhouses

White pine
Western red cedar
Yellow cedar
Western white pine
Eastern cedar

Corestock

Chestnut
Poplar
Black cottonwood
Spruce
Douglas fir
Western red cedar
Western hemlock
Birch
Red alder
Ash
White pine
Western white pine

Distillation

Yellow birch
White birch
Sugar maple
Soft maple
Beech

Dowels

Birch
Maple
Ash
Oak
Beech
Douglas fir
Elm
Hickory
Pine

Electrical Apparatus

Sugar maple

CANADIAN EXPORT TIMBERS

Yellow birch
Beech
Oak
Soft elm
Pine
Basswood
Western red cedar
Spruce
Black walnut
Western larch
Douglas fir

Excelsior

Poplar
Basswood
Black cottonwood
White pine

Furniture and Fixtures

House interior, office, shop

Yellow birch
Maple
Oak
Black walnut
Black cherry
Elm
White ash
Douglas fir
Basswood
White pine
Western white pine
Ponderosa pine
Red pine
Spruce
Western red cedar
Yellow cedar
Black cottonwood
Western hemlock
Red alder
Broad-leaved maple

Verandah and lawn

Pine
Chestnut
Western red cedar
Yellow cedar
Douglas fir
Western hemlock
Spruce
Oak

Moth-resistant chests

Red juniper
Eastern cedar

Western red cedar
Yellow cedar

Kitchen cabinets

Pine
Basswood
Western hemlock
Spruce
Poplar
Birch
Soft elm
Chestnut
Oak

Refrigerators

Yellow birch
Maple
Oak
White ash
Elm
Chestnut
Pine
Spruce
Douglas fir
Western hemlock

Chairs

Yellow birch
Sugar maple
Oak
Beech
Ash
Broad-leaved maple
Hickory
Black walnut
Douglas fir
Basswood
Red alder
Black cherry
Chestnut
Spruce

Gunstocks

Yellow birch
Black walnut
Maple

Handles

Hickory
White ash
Apple
Ironwood
Elm
Sugar maple

Oak
Birch
Douglas fir
Beech
Black walnut
Pine
Basswood
Spruce

Brush

Birch
Maple
Beech
Basswood
Poplar

Broom

Maple
Birch
Beech
Western hemlock
Douglas fir
Pine

Axe

Hickory
White ash
Ironwood
Sugar maple

Tool

Hickory
White ash
Apple
Rock elm
Soft elm
Ironwood
Sugar maple
Birch
Black cherry

Ladders

Spruce
Douglas fir
Western hemlock
Ponderosa pine
Red pine

Rungs

Elm
Yellow birch
Sugar maple
Beech
Hickory
Douglas fir

CANADIAN EXPORT TIMBERS

Laundry Appliances

Sugar maple
Yellow birch
Beech
Elm
Basswood
Pine
Spruce
Cedar

Machine Construction

Steam shovels, dredges

Douglas fir
Oak
Pine
Sugar maple
Hemlock
Ash
Yellow birch
Chestnut
Spruce
Elm
Beech

Matches

Western white pine
White pine
Poplar
Basswood
Black cottonwood

Mine Timbers

Spruce
Jack pine
Lodgepole pine
Red pine
Elm
Douglas fir
Western hemlock
Western larch
Tamarack
Western red cedar
Eastern cedar
Yellow birch
Sugar maple
Oak
Chestnut
Beech

Musical Instruments

Spruce
Sugar maple
Basswood
White pine
Western white pine
White ash
Yellow birch
Oak
Elm
Douglas fir
Chestnut
Black cherry
Hickory
Black walnut
Western red cedar

Pianos and organs

Sugar maple
Spruce
Basswood
White pine
Oak
Black walnut
Yellow birch
Soft elm
Ash

Radios and gramophones

Black walnut
Yellow birch
Sugar maple
Oak

Violins

Sugar maple
Spruce

Patterns

White pine
Western white pine
Ponderosa pine
Red pine
Yellow cedar
Western red cedar
Black cherry
Basswood

Paving Blocks

Douglas fir
Red pine
Western larch
Tamarack

Picture Mouldings and

Framing

White pine
Basswood
Western white pine
Yellow cedar
Western red cedar
Black cherry
Chestnut
Yellow birch
Soft maple
Oak
Black walnut

Pipes (Conduit) and Flumes

Douglas fir
Western red cedar
Eastern cedar
Western larch
Red pine

Plumbers' Supplies

Yellow birch
Ash
Elm
Sugar maple
Oak
Pine
Black walnut
Beech
Chestnut
Black cherry

Poles, Telephone and

Telegraph

Western red cedar
Eastern cedar
Red pine
Jack pine
Lodgepole pine
Douglas fir
Tamarack
Chestnut

Cross-arms

Douglas fir
Red pine
Oak
Jack pine

Top-pins, brackets

Sugar maple
Yellow birch
Beech

CANADIAN EXPORT TIMBERS

Pulley Blocks

Sugar maple
Yellow birch
Beech
Basswood
Elm

Pulp

Sulphate

Jack pine
Spruce
Fir (balsam)
Douglas fir
Western red cedar
Lodgepole pine

Sulphite

Spruce
Fir (balsam)
Western hemlock
Eastern hemlock
Jack pine

Soda

Poplar
White birch
Soft maple
Black cottonwood

Groundwood

Spruce
Fir (balsam)
Western hemlock

Railway Cars

Sills, brake-beams, posts

Douglas fir
Oak
Sugar maple
Ash
Elm
Red pine
Yellow birch
Western larch

Sheathing and siding

Douglas fir
Red pine
Western hemlock
White pine
Spruce

Framing

Douglas fir
Oak

White ash
Western larch
Red pine
Elm
Yellow birch

Roofing

Douglas fir
Red pine
Western hemlock
Eastern hemlock
Western red cedar
White pine
Ponderosa pine
Western white pine
Spruce

Lining

Red pine
White pine
Douglas fir
Hemlock
Ponderosa pine
Western white pine
Spruce

Decking or flooring

Douglas fir
Red pine
Western larch
Western hemlock

Inside finish and paneling (passenger cars)

Yellow birch
Black walnut
Black cherry
Oak
Sugar maple
Douglas fir
Chestnut
White ash

Railway ties

Jack pine
Lodgepole pine
Douglas fir
Yellow birch
Sugar maple
Beech
Tamarack
Western larch
Eastern hemlock
Western hemlock
Eastern cedar

Oak
Spruce

Scientific Instruments

Sugar maple
Yellow birch
Beech
Pine
Basswood
Western red cedar
Eastern white cedar
Hickory
White ash
Yellow cedar
Oak
Spruce
Black walnut
Black cherry
Chestnut
Elm

Seats (Grand Stand and Stadium)

White pine
Douglas fir
Red pine
Western white pine
Western red cedar

Sewing Machines

Yellow birch
Sugar maple
Soft elm
Oak
Black walnut
Chestnut

Shade and Map Rollers

Pine
Basswood
Birch
Douglas fir
Maple
Spruce

Ship and Boat Building

Frame and keel

Douglas fir
Oak
Hickory
White ash
Spruce

CANADIAN EXPORT TIMBERS

Tamarack
Western larch
Yellow cedar

Plancking

Yellow cedar
Western red cedar
Pine
Tamarack
Spruce
Douglas fir
Oak
Chestnut
Eastern cedar
Sugar Maple
Birch

Decking

White pine
Yellow cedar
Western white pine
Western red cedar
Chestnut
Oak
Douglas fir
Sugar maple
Birch

Canoes, ribs and braces

Ash
Hickory
Elm
Yellow cedar
Eastern cedar
Western red cedar
Spruce

Plancking

Western red cedar
Yellow cedar
Eastern cedar
Basswood
Chestnut

Oars and paddles

White ash
Spruce
Sugar maple
Yellow cedar

Signs (Advertising)

Pine
Basswood
Spruce
Western red cedar

Douglas fir
Western larch
Western hemlock
Fir

Silos

Douglas fir
Spruce
Pine
Western hemlock
Western red cedar
Eastern hemlock

Spoolwood

White birch
Basswood
Poplar
Soft maple

Sporting Goods

Hickory
Ash
Willow
Oak
Elm
Maple
Birch
Beech
Pine
Spruce
Douglas fir
Basswood
Black walnut
Yellow cedar
Eastern cedar
Western red cedar

Tennis and badminton racquets

White ash
Western red cedar
Hickory
Oak
Basswood

Skiis

White ash
Hickory
Sugar maple
Yellow birch

Baseball bats

Hickory
White ash

Sugar maple
Willow

Lacrosse sticks
Hickory

Hockey sticks

Elm
White ash
Yellow birch
Hickory
White ash
Sugar maple

Billiard tables

Sugar maple
Yellow birch
Black walnut
Elm

Playground and gymnasium equipment

Sugar maple
Hickory
Yellow birch
Elm
Oak
Ash
Beech
Douglas fir
Western hemlock
Pine
Spruce
Basswood

Tanks

Water

Douglas fir
Western red cedar
Red pine
Ponderosa pine
White pine
Western white pine
Eastern cedar
Western larch
Tamarack
Oak
Chestnut

Acid

Douglas fir
Pine
White oak
Chestnut

CANADIAN EXPORT TIMBERS

Tannin

Eastern hemlock
Oak
Chestnut
Western hemlock

Toys and Novelties

Pine
Spruce
Basswood
Maple
Ash
Birch
Yellow cedar
Western red cedar
Western hemlock
Douglas fir
Elm
Poplar
Black cherry
Chestnut
Red alder
White oak
Beech
Red juniper
Black walnut

Plywood and Veneers

Birch
Douglas fir
Sitka spruce
Black cottonwood
Poplar
Soft elm
Western larch
Sugar maple
Basswood
White oak
Black walnut
Ash

Venetian Blinds

White pine
Western white pine
Basswood
Yellow cedar

Wagons, Trucks

Ash
Hickory
Douglas fir

Elm
Oak
Ironwood
Chestnut
Pine
Spruce
Basswood
Yellow birch
Sugar maple
Beech
Eastern hemlock
Western hemlock
Poplar

Woodenware

Maple
Birch
Basswood
White pine
Western white pine
Spruce
Poplar
Red alder
Ash

Appendix B

CANADIAN FOREIGN TRADE SERVICE ABROAD

Timber Specialist in United Kingdom—R. D. ROE, Commercial Secretary (Timber Specialist), Office of the High Commissioner for Canada, Canada House, Trafalgar Square, London, S.W.1—Cable address, Timcom, London.

Argentina

Buenos Aires—H. L. BROWN, Commercial Secretary, Canadian Embassy, Bartolomé Mitre 478.

Territory includes Uruguay and Paraguay.

Australia

Sydney—C. M. CROFT, Commercial Counsellor for Canada, City Mutual Life Building, Hunter and Bligh Streets. Address for letters: Post Office Box 3952V.

Territory includes the Australian Capital Territory, New South Wales, Queensland, Northern Territory and Dependencies.

Melbourne—F. W. FRASER, Commercial Secretary for Canada, 83 William Street.

Territory includes States of Victoria, South Australia, Western Australia, and Tasmania.

Belgian Congo

Leopoldville—L. H. AUSMAN, Canadian Government Trade Commissioner, Palace Hotel. Address for letters: Boite Postale 373.

Territory includes Angola and French Equatorial Africa.

Belgium

Brussels—B. A. MACDONALD, Commercial Secretary, Canadian Embassy, 46 rue Montoyer.

CANADIAN EXPORT TIMBERS

CANADIAN FOREIGN TRADE SERVICE ABROAD—Continued

Brazil

Rio de Janeiro—MAURICE BÉLANGER, Commercial Secretary, Canadian Embassy, Ed. Métropole, Avenida Presidente Wilson, 165. Address for letters: Caixa Postal 2164.

Sao Paulo—J. C. DEPOCAS, Canadian Government Trade Commissioner, Canadian Consulate, Edifício Alois, Rua 7 de Abril 252. Address for letters: Caixa Postal 6034.

Chile

Santiago—J. L. MUTTER, Commercial Secretary, Canadian Embassy, Bank of London and South America Building. Address for letters: Casilla 771.

Territory includes Bolivia.

China

Shanghai—L. M. COSGRAVE, Commercial Counsellor for Canada, 27 The Bund. Postal District (0).

Colombia

Bogotá—H. W. RICHARDSON—Acting Canadian Government Trade Commissioner, Edificio Colombiana de Seguros. Address for letters: Apartado 1618. Address for air mail: Apartado Aereo 3562.

Territory includes Republic of Panama and the Canal Zone.

Cuba

Havana—R. G. C. SMITH, Commercial Secretary, Canadian Legation, Avenida de las Misiones 17. Address for letters: Apartado 1945.

Territory includes Haiti, Dominican Republic and Puerto Rico.

Egypt

Cairo—J. M. BOYER, Canadian Government Trade Commissioner, 22 Shari Kasr el Nil. Address for letters: Post Office Box 1770.

Territory includes the Sudan, Palestine, Cyprus, Iraq, Syria and Iran.

France

Paris—YVES LAMONTAGNE, Commercial Secretary, Canadian Embassy, 3 rue Scribe.

Territory includes Switzerland, Algeria, French Morocco and Tunisia.

Germany

Frankfurt—D. W. JACKSON, Canadian Economic Representative, c/o Allied Contact Section, H.Q. EUCOM, Frankfurt, A.P.O. 757, U.S. Army.

Cable Address, Canadian Frankfurt/Main.

Greece

Athens—T. J. MONTY, Commercial Secretary, Canadian Embassy, 31 Vassilissis Sophias Avenue.

Territory includes Turkey.

Guatemala

Guatemala City—C. B. BIRKETT, Canadian Government Trade Commissioner, Post Office Box 400.

Territory includes Costa Rica, El Salvador, Honduras and Nicaragua.

Hong Kong

Hong Kong—K. F. NOBLE, Canadian Government Trade Commissioner, Hong Kong Bank Building. Address for letters: Post Office Box 126.

Territory includes South China, the Philippine Islands and French Indo-China.

India

Bombay—RICHARD GREW, Canadian Government Trade Commissioner, Gresham Assurance House, Mint Road. Address for letters: Post Office Box 886.

Territory includes Burma and Ceylon.

Ireland

Dublin—H. L. E. PRIESTMAN, Commercial Secretary for Canada, 66 Upper O'Connell Street.

Belfast—H. L. E. PRIESTMAN, Canadian Government Trade Commissioner, 36 Victoria Square.

Italy

Rome—J. P. MANION, Commercial Secretary, Canadian Legation, via Saverio Mercadante 15-17. Address for letters: Casella Postale 475. (Telephones—471-597 and 470-708).

Territory includes Czechoslovakia, Malta, Yugoslavia and Libya.

Jamaica

Kingston—M. B. PALMER, Canadian Government Trade Commissioner, Canadian Bank of Commerce Chambers. Address for letters: Post Office Box 225.

Territory includes the Bahamas and British Honduras.

Mexico

Mexico City—D. S. COLE, Commercial Counsellor, Canadian Embassy, Edificio Internacional, Paseo de la Reforma. Address for letters: Apartado Num. 126-Bis.

Netherlands

The Hague—J. A. LANGLEY, Commercial Counsellor, Canadian Embassy, Sophialaan 1-A.

Newfoundland

St. John's—J. C. BRITTON, Commercial Secretary, Office of the High Commissioner for Canada, Circular Road.

New Zealand

Wellington—P. V. McLANE—Commercial Secretary, Office of the High Commissioner for Canada, Post Office Box 1660.

Territory includes Fiji and Western Samoa.

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CANADIAN FOREIGN TRADE SERVICE ABROAD—Concluded

Norway

Oslo—S. G. MACDONALD, Commercial Secretary, Canadian Legation, Fridtjof Nansens Plass 5. Territory includes Denmark and Greenland.

Pakistan

Karachi—G. A. BROWNE, Acting Canadian Government Trade Commissioner. Address for letters: Post Office Box 531.

Peru

Lima—C. J. VAN TIGHEM, Commercial Secretary, Canadian Embassy, Edificio Boza, Carabaya 831, Plaza San Martin. Address for letters: Casilla 1212. Territory includes Ecuador.

Portugal

Lisbon—L. S. GLASS, Canadian Government Trade Commissioner, Rua Rodrigo da Fonseca 103. Territory includes the Azores and Madeira, Spain, Spanish Morocco, the Canary Islands and Gibraltar.

Singapore

Singapore—PAUL SYKES, Canadian Government Trade Commissioner, Room D-2, Union Building. Address for letters: Post Office Box 845. Territory includes Federation of Malaya, North Borneo, Brunei, Sarawak, Siam and Netherlands East Indies.

South Africa

Johannesburg—J. H. ENGLISH, Commercial Counsellor for Canada, Mutual Buildings, Harrison Street. Address for letters: Post Office Box 715.

Territory includes Transvaal, Natal, Southern Rhodesia, Northern Rhodesia, Mozambique or Portuguese East Africa, Kenya, Nyasaland, Tanganyika and Uganda.

Cable address, Cantracom.

Cape Town—S. V. ALLEN, Commercial Secretary for Canada, New South African Mutual Buildings, 21 Parliament Street. Address for letters: Post Office Box 683.

Territory includes Cape Province, Orange Free State, South-West Africa, Mauritius and Madagascar.

Cable address, Cantracom.

Sweden

Stockholm—F. H. PALMER, Commercial Counsellor, Canadian Legation, Strandvägen 7-C. Address for letters: Post Office Box 14042. Territory includes Finland.

Trinidad

Port-of-Spain—T. G. MAJOR, Canadian Government Trade Commissioner, Colonial Life Insurance Building. Address for letters: Post Office Box 125.

Territory includes Barbados, Windward and Leeward Islands, British Guiana, Dutch Guiana, French Guiana, and the French West Indies.

United Kingdom

London—A. E. BRYAN, Commercial Counsellor, Office of the High Commissioner for Canada, Canada House, Trafalgar Square, S.W.1. *Cable address, Sleighing, London.*

London—R. P. BOWER, Commercial Secretary, Office of the High Commissioner for Canada, Canada House, Trafalgar Square, S.W.1. Territory includes the South of England, East Anglia and British West Africa (Gold Coast, Sierra Leone and Nigeria). *Cable address, Sleighing, London.*

Liverpool—M. J. VECHSLER, Canadian Government Trade Commissioner, Martins Bank Building, Water Street. Territory includes the Midlands, North of England and Wales.

Glasgow—G. F. G. HUGHES, Acting Canadian Government Trade Commissioner, 200 St. Vincent Street. Territory covers Scotland and Iceland. *Cable address, Cantracom.*

United States

Washington—H. A. SCOTT, Commercial Counsellor, Canadian Embassy, 1746 Massachusetts Avenue, N.W.

New York City—M. T. STEWART, Canadian Government Trade Commissioner, British Empire Building, Rockefeller Center. Territory includes Bermuda. *Cable address, Cantracom.*

Chicago—EDMOND TURCOTTE, Consul-General for Canada, Suite 800, Chicago Daily News Building, 400 West Madison Street.

Los Angeles—V. E. DUCLOS, Canadian Government Trade Commissioner, Associated Realty Building, 510 West Sixth Street.

Venezuela

Caracas—C. S. BISSETT, Canadian Government Trade Commissioner, Canadian Consulate General, Edificio America. Address for letters: 8° Piso, Esq. Veroes. Territory includes Netherlands West Indies.

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